

SEPTEMBER, 1877.



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# THE AMERICAN FARMER.

"O FORTUNATOS NIMIUM SUA SI BONA NORINT  
"AGRICOLAS." . . . . . Virg.

PUBLISHED BY SAM'L. SANDS & SON, BALTIMORE, MD.

VOL. VI.—No. 9.]

SEPTEMBER, 1877.

[NEW SERIES.

## Wheat Experiments.

Messrs. Editors of the American Farmer:

We made the following experiments with wheat this season at the Eastern Experimental Farm, West Grove, Chester county, Pa., and desire to report results to your very valuable paper. The plots were laid out on oats-stubble land, the soil of which was a light strata, with a porous clay sub-soil—the land of good quality. They were plowed August 15th, the fertilizers sown September 14th, and harrowed in; the wheat sown broadcast and harrowed in September 16th.

The wheat was cut July 9th, and drawn in, threshed and weighed July 14th. The variety used in these experiments was the Fultz.

## Fertilizer Experiments.

KIND OF FERTILIZER.	LS. OF FERTILIZERS.	LS. OF STRAW PER ACRE.	BUSHEL PER ACRE.
Stockbridge Wheat formula, viz: 300 lbs. Sulphate Ammonia. 48 lbs. Muriate of Potash, 190 lbs. Superphosphate (Challenge). . .	368	2,080	36
Bone Superphosphate.....	704	2,336	32 50-60
Rock Superphosphate.....	912	2,656	35 44-60
No Fertilizer.....		2,390	34 46-50

The "Challenge" Superphosphate analyzed about 30 per cent. available phosphoric acid; the Bone Superphosphate about 14 per cent., and the Rock Superphosphate about 15 per cent. All were applied at the rate of \$15.00 per acre.

## Drilling versus Broadcasting.

Two contiguous plots were selected. Upon one we drilled in the seed at the rate of two bushels per acre; on the other we sowed two bushels broadcast, and harrowed in.

	Straw.	Bushels.
Drilled.....	2,716	34 4-60
Broadcast.....	3,392	35 48-60

This result corresponds with similar experiments in previous years.

## Varieties of Wheat.

Plats containing an eighth of an acre were sown as above described, except the ground had a light coat of barnyard manure plowed under, and a surface application of 300 lbs. South Carolina Rock Superphosphate harrowed in.

KINDS OF WHEAT.	TIME OF RIPENING.	BEARDED OR SMOOTH.	COLOR OF GRAIN.	LS. STRAW PER 1/2 ACRE.	LS. GRAIN PER 1/2 ACRE.
Fultz.....	6 mo. 30	Smooth.	Amber.	416 1/2	268 1/2
Fultz-Hybrid.....	6 mo. 30	Smooth.	Amber.	416	244
Clawson.....	7 mo. 2	Smooth.	White.	479 1/2	260 1/2
Grecian White.....	7 mo. 8	Smooth.	White.	185 1/2	60 1/2
Brittany.....	7 mo. 2	Bearded.	Red.	386 1/2	188 1/2
Jennings.....	7 mo. 2	Bearded.	White.	490	251
Old White Chaff Mediterranean.....	7 mo. 2	Bearded.	Amber.	387	208
Gold-Dust, from Agricultural Department..	7 mo. 2	Smooth.	White.	465	240

The following additional varieties were sown, but in too limited quantities to record their yield in figures. The following notes were made during their growth. The plants were sown September 21st:

VARIETY.	Time of Ripening.	Bearded or Smooth.	Color of Grain.	GENERAL CHARACTER.	General Value of the Variety.
Fultz.....	6 mo. 30	Smooth.	Amber.	Hardy, stiff straw.....	Very good.
Russian.....	6 mo. 30	Bearded.	Red.	Hardy, good straw.....	Good.
Shoemaker.....	7 mo. 2	Smooth.	Amber.	Hardy, good straw.....	Good.
Rough chaff.....	7 mo. 8	Smooth.	White.	Hardy, weak straw.....	Poor.
Treadwell.....	7 mo. 2	Smooth.	White.	Hardy, good straw.....	Very good.
Amber.....	7 mo. 2	Smooth.	Amber.	Hardy, good straw.....	Good.
Chidham.....	7 mo. 8	Smooth.	White.	Half hardy, weak straw.....	Very poor.
Diehl.....	7 mo. 2	Smooth.	White.	Half hardy, good straw.....	Good.
Arnold's Gold Medal.....	7 mo. 3	Smooth.	White.	Hardy, good straw.....	Good.
Triumph.....	7 mo. 8	Smooth.	White.	Half hardy, weak straw.....	Poor.
Muskingum.....	7 mo. 4	Smooth.	Amber.	Hardy, good straw.....	Good.
Victoria.....	7 mo. 8	Smooth.	White.	Not hardy, weak straw.....	Very poor.
Kentucky.....	7 mo. 2	Smooth.	White.	Hardy, good straw.....	Good.
Silver chaff.....	7 mo. 6	Smooth.	White.	Half hardy, weak straw.....	Poor.
Nursery.....	7 mo. 6	Smooth.	Red.	Hardy, good straw.....	Good.
Horn's white.....	7 mo. 9	Smooth.	White.	Not hardy, weak straw.....	Very poor.
Grecian.....	7 mo. 9	Smooth.	White.	Not hardy, weak straw.....	Very poor.
Red May.....	7 mo. 2	Smooth.	Red.	Hardy, good straw.....	Quite good.
Arnold's hybrid.....	7 mo. 4	Smooth.	White.	Hardy, good straw.....	Good.
Lammas.....	7 mo. 8	Smooth.	Red.	Not hardy, weak straw.....	Poor.
Louisiana.....	7 mo. 4	Smooth.	White.	Hardy, medium straw.....	Good.
Tappahannock.....	6 mo. 30	Smooth.	White.	Hardy, light straw.....	Poor.
Clawson.....	7 mo. 2	Smooth.	White.	Hardy, fine straw.....	Very good.
Jennings.....	7 mo. 2	Bearded.	White.	Hardy, good straw.....	Good.
White Rodgers.....	7 mo. 2	Bearded.	White.	Hardy, good straw.....	Good.
Red Russian.....	7 mo. 6	Bearded.	Red.	Half hardy, poor straw.....	Poor.
Post.....	7 mo. 6	Bearded.	White.	Half hardy, poor straw.....	Poor.
Michigan Wick.....	7 mo. 2	Bearded.	White.	Hardy, good straw.....	Good.
Red Mediterranean.....	7 mo. 2	Bearded.	Red.	Hardy, weak straw.....	Good.
Dott.....	7 mo. 2	Bearded.	Red.	Not hardy, weak straw.....	Poor.
Fultz hybrid.....	6 mo. 30	Smooth.	Amber.	Hardy, good straw.....	Good.
Herne.....	7 mo. 2	Smooth.	White.	Not hardy, poor straw.....	Poor.
Rogers.....	7 mo. 6	Smooth.	Amber.	Hardy, good straw.....	Good.
Thin bran.....	7 mo. 4	Bearded.	Red.	Hardy, good straw.....	Poor.

Among the many varieties tried within the past four years we have found none suiting us better than the Fultz. It is productive, stands up well and is hardy. The Clawson makes more straw and has a whiter berry, but is later and less productive. They both require strong ground. The Gold-lust is a promising kind from the Agricultural Department. It has stiff straw and a beautiful berry, and is well worthy of a further trial.

JOHN I. CARTER, *Supt.*

West Grove, Pa., 8th mo. 15th, 1877.

### Wheat Culture.

#### Editors American Farmer:

The safest time to seed wheat here is from the 1st to the 15th October. If it be seeded sooner than at that time it will be liable to the attack of the fall fly, and if later will not have sufficient time to get a good hold upon the soil before winter. In order that the crop be seeded within the time designated, as much of the work of preparation as possible should be done in advance of seeding time, and this is *practicable to a considerable extent.*

In fact the soil can and should be put in a state of perfect preparation before seeding, and when that has been done the seeding can be completed in a comparatively short time.

The wheat plant requires a clean, compact, thoroughly-pulverized soil. When the crop is to be seeded on a fallow, the following should be done as early as possible after the 1st of July. In order to cause a thorough pulverization of the soil it should be harrowed immediately behind the plough and before it has time to dry and harden. Afterwards, and before seeding time, in order to prevent a growth of grass and to keep the soil open so as to hasten the decomposition of the vegetable matter in the soil, it should be har-

rowed at intervals of two or three weeks. It is exceedingly important that the vegetable matter in the soil should be thoroughly rotted before the seeding is done; hence the necessity of an early fallow.

The old English system of fallow is the best. They fallow their lands early in the spring, and they are kept clean and free from a growth of grass during the entire summer by an occasional harrowing.

Here, in the tobacco-growing regions of Virginia, the tobacco lot is the best preparation for wheat. In order to make good tobacco the soil has to be heavily manured and thoroughly cultivated. And when the tobacco is taken off, which is done generally about the time of seeding the wheat crop, the soil is left in a perfect condition for wheat.

And these tobacco lots scarcely ever fail to make a heavy yield of wheat. As much as 40 bushels per acre have been made here the present season on some of these tobacco lots. The cultivation of tobacco and wheat in connection, to be followed by clover, constitutes the best system that can be adopted in this region of country. And if our farmers would abandon their old habit of keeping standing lots for tobacco, and bring new land in cultivation every year, it would

constitute the best system of improvement that could be desired. One of our most important things in the cultivation of the wheat crop is the selection of good seed. Our wheat-growers here generally do not sufficiently realize the great importance of sowing good seed. It is exceedingly important, for success in wheat culture depends very much upon it. Not only should the best seed be selected, but it has become necessary to steep it in some of the various "soaks" to prevent smut, which is getting to be a terrible evil. In this region of country whole crops have been almost ruined by the neglect of these necessary precautions in the preparation of seed wheat.

There is another very important consideration in connection with the cultivation of wheat. Farmers should not confine themselves to the cultivation of any one variety of wheat, however productive it may be. The crop should be divided between the red and white varieties, and for the very obvious reason that the best types of flour cannot be made out of red wheat alone. These facts have been most signally exemplified during the present season. Here in Virginia almost the entire crop of the present season is of the Fultz variety, and there is not enough white wheat in the market to make the necessary quantity of family flour, and consequently the Fultz wheat is now selling in the market for twenty cents less than the white varieties. If there was enough white wheat now in the market to form the necessary mixture to make the best type flour, the Fultz variety would command twenty cents more than what it is selling for now. Moreover, our millers contend that the Fultz wheat does not possess that dry and flinty character peculiar to Virginia wheat generally, and that has given the Richmond brands of flour the high character that they have always held, and by which they have been enabled to hold a monopoly of the West India and South American markets.

It is a fact well established and well known that flour made out of Virginia wheat will keep longer and better in hot damp climates than that made from any other wheat. And not only so, but it will make about 10 per cent. more bread because of its dryness and consequent capacity of absorbing more water.

Touching the character of the fertilizers to be used in the cultivation of wheat, I will only observe that wheat requires a great deal of nitrogen in its growth, and that a wheat fertilizer should bear a high percentage of ammonia combined with phosphoric acid and potash.

Cumberland Co., Va.

WM. HOLMAN.

### Fultz and Clawson Wheat.

*Editors American Farmer:*

Your favor asking for information as regards my wheat, &c., to hand. It is with pleasure I reply, for as I read from month to month in your valuable journal with such interest the experiments and processes of reliable men throughout the country it certainly would not be becoming in me to withhold anything that might be of service to my fellow-farmers.

At best we have a pretty hard struggle; but with co-operation and well-directed industry,

well-fed cattle and well-fed land will pay, and my experience teaches me *none other*.

The Fultz wheat I have sown for four successive years, averaging from 28 to 40 bushels per acre. Two years ago this fall we received from Depart. Ag., Washington, 4 quarts Clawson Winter Wheat, from which we threshed 10 bushels. This was a variety entirely new to our neighborhood; and though the grain was perfect, (pronounced by Charles Hartley of Patapasco Mills, Ellicott City, the best sample of wheat grown in the State,) still we were afraid to venture too deep, but determined to give it another trial, side by side with Fultz, which I did in the following manner: Having a four-acre lot of pretty stiff clay, though mixed a little with isinglass, from which had been taken 55 bushels oats per acre, I ploughed from 5 to 7 inches first September; used all the fine manure I had, covering slightly about one half the lot (or 2 acres.) Then harrowed good three times at intervals, the last time just before drill September 28th, sowed the same amount of each variety, 1½ bushels per acre—with 500 lbs. fertilizer per acre, one-half Slinguff's Dis. Bone and one-half Turner's Excelsior mixed in drill. And just here you may ask the question, "Why do you mix the two?" I would reply as I did to Mr. Slinguff a few days since, "Because experience teaches me I can raise more wheat in that way than any other, also grass." The Excelsior for wheat, the Bone for coming hay crop. We cut both varieties July 2d, though the Fultz was about two days ahead in ripening. Neither was at all lodged; the old cradle could have cut any part of it. From my two acres Fultz I gathered 110 dozen threshing 80 bushels measure,—weighing 84. From Clawson, 103 dozen threshing 88 bushels, and weighing 91; making the extraordinary yield of 175 bushels prime wheat from 4 acres.

Of course the season had much to do in making so abundant a crop, though I can see no reason, with an ordinary season, why we should not produce from 25 to 40 bushels. Of course it would be a miracle were it to grow on rough, half-cultivated ground, with 100 or 150 lbs. of any known fertilizer. But upon the other hand I contend it would also be a miracle, a deviation from the known laws of nature, if with proper cultivation of soil, and from 400 to 600 lbs. of any standard fertilizer to the acre, we would not average at least 30 bushels prime wheat. Should the Clawson continue its two-year record, and I see no reason why it should not, being sown and harvested both years same day as Fultz, it certainly must be the wheat of the country. My neighbor, Martin L. Jean, to whom I sold 2 bushels last fall, informed me yesterday he had threshed from same 75 bushels. From 7½ bushels other variety, he threshed 80 bushels. He will sow nothing but Clawson coming season.

Doubtless, Messrs. Editors, I have taxed your patience more than you had any idea of when asking for my yield of wheat, &c. This you will condense to suit your time and pleasure. I only hope you nor any of my fellow-farmers may not see anything in the above like egotism. To say I am not proud of raising 45 bushels of wheat per acre would be an untruth. He that would not be does not deserve to do it, *nor never*

will. Our total crop, 874 bushels; our ground preceded by corn and oats; whole average per acre, 32 bushels; average amount fertilizer per acre, 350 lbs., mixed as above. Our aim each year is to surpass if possible the last.

We have very much, yet to learn in raising wheat, as well as our other agricultural pursuits, though this much we know, that it does not pay to do anything upon the farm unless 'tis done well.

Yours truly,

EDWD. S. CHOATE.

P. S.—Enclosed please find samples of Clawson and Fultz.

Balto. Co., August 18th, 1877.

[Mr. Geo. Geddes, one of the best farmers of New York State, says:

"That being a grower of wheat for more than forty years on the best wheat lands, and having raised many varieties, I consider the Clawson the very best of them all, taking everything into consideration."

The Clawson seed wheat advertised by Messrs. Griffith & Turner is from that produced by Mr. Choate.—Eds.]

#### Artificial Fertilizers for Wheat.

Joseph Harris, in *The American Cultivator*, gives the following:

"One of the most hopeful signs in agriculture," said the Doctor, "is the remarkable increase in the use of artificial manures. I know that you contend that we can make manure cheaper than we can buy it, and that we ought to raise more beef, mutton and wool."

"We ought to save and apply the manure that we do make," broke in the Deacon, "rather than to spend our money on super-phosphate and guano."

"In reply to that," said I, "one thing is certain: the farmer who buys artificial manure is apt to take the greatest pains in making the most and richest manure, and in saving and applying it. Those who talk about sending to Peru for guano while the manure in the barn-yard is allowed to run into the nearest ditch, can point to few practical illustrations of such folly. The farmer who owns his land, and lets the little manure that he makes run to waste, seldom buys guano and super-phosphate."

And I agree with the Doctor in regarding the increased and increasing demand for artificial fertilizers as a gratifying indication of better farming. I was talking yesterday with Mr. F. P. Root, one of the largest and most successful wheat-growers in Western New York. He says that 200 pounds of super-phosphate, drilled in with the seed, frequently doubles the crop of wheat. He says that the Grange in his town bought 100 tons last Spring, and have just ordered 80 tons for sowing with the wheat this Fall. They got the manure at a reasonable price and find its use decidedly profitable. Of course it does not follow from this that super-phosphate is the best and cheapest artificial manure for wheat. The super-phosphate contains nitrogen as well as phosphates, and we still require experiments to show the proper proportions. We want a series of experiments in which part of

the field is left without manure of any kind; another dressed with super-phosphate made from burnt bones, and which shall contain no nitrogen, and then several plots dressed with super-phosphate and nitrate of soda or sulphate of ammonia in different proportions. In other words, we want to use a super-phosphate containing, say two per cent. of nitrogen, three per cent. of nitrogen, five per cent., and so on up to ten or twelve per cent. Lawes and Gilbert's experiments show that in England a manure for wheat should contain a much larger proportion of nitrogen than is found in any of our commercial super-phosphates. Our climate, however, is so different that it may well be that our wheat requires less nitrogen in the soil than is found desirable in England.

In England, Mr. Lawes found that it was far better to drill in super-phosphate with the turnip seed than to sow it broadcast. But on his wheat, super-phosphate and other artificial fertilizers were used broadcast, and not drilled in with the seed. Here our farmers have found a decided advantage in drilling in super-phosphate with the wheat, as compared with sowing it broadcast.

#### The True Theory of Farming—No. 17.

THE QUANTITY OF WATER EVAPORATED DEPENDS ON THE QUANTITY OF SURFACE EXPOSED, AND THIS IS CONTROLLED BY THE MODE OF CULTIVATION.

Messrs. Editors *American Farmer* :

In reference to our subject, evaporation is the effect of heat on water. Heat and water being the agents of its production, we must first come to a common understanding of their properties and mode of operation.

Water is a compound of two gaseous elements, called oxygen and hydrogen. When these unite to form water their bulk is greatly diminished; thus the union of a large volume of the gases is necessary to form a drop of water.

By weight, water consists of oxygen 8, hydrogen 1; that is, 9 lbs. of water consists of 8 lbs. of oxygen and 1 lb. of hydrogen.

Water exists most abundantly in the liquid condition. It is used chiefly in this state in the arts, and, combined with other substances, it constitutes more than half of the bodies of plants and animals. It is therefore usually contemplated as a liquid much heavier than air. But it is often far lighter than air, as when exhaled into vapor, or evaporized into steam. In the form of steam it is invisible, and its bulk increased nearly 1,700 times; that is, a cubic inch of liquid water makes about a cubic foot in the gaseous form of steam.

Water occurs in varied and opposite forms, presenting great diversities of physical and chemical properties, depending on temperature (its degree of heat) and its chemical combination with other bodies. In ice below 32° of heat, (Fahr.) or in hydrate of lime, magnesia, &c., at ordinary temperatures, it is solid and dry; in rain drops, liquid; in vapor, gaseous and invisible; in clouds it forms minute bubbles or hollow globes, sometimes called vesicles.



The several states in which it occurs in the atmosphere depend on its temperature.

Its greatest density occurs at  $39^{\circ}$  Fahr.; that is, water expands when its heat rises above or falls below  $39^{\circ}$ . It therefore expands slightly in the formation of ice at  $32^{\circ}$ , and greatly in the production of steam at  $212^{\circ}$ .

The heat of the sun on a summer day converts liquid water, whether on the surface of the ocean or of the soil, into the invisible gaseous form of vapor. This process is called evaporation.

In distillation, with which many farmers are familiar, liquids are changed to vapor, evaporated by heat, in one vessel, and this vapor condensed into liquid again by cooling in another.

All the rain, hail and snow that ever fell, and all the frost and dew that ever formed on the earth, occur through this process,—the diversity of formations being governed by different *intensities or degrees of heat*. We know no positive cold. We say ice is cold, because its degree of heat is much less than that of our bodies.

The heat of the sun evaporates water from the surface of land and sea in the same way as terrestrial fire vaporizes liquids in the common process of distillation.

The vapor and air which rise being warmer, and therefore more expanded and lighter than the air above, are wafted to colder regions and condensed into rain, or congealed into snow. At and near the equator, where the solar rays are nearly vertical, evaporation in the sunshine is constant. The heated air, mixed with vapor, ascends, divides, and wafts north and southward. The colder, and therefore denser and heavier air from the north and south polar regions rushes, in contrary directions, towards the equator, under the outgoing winds, to fill the place of the ascending air and vapor flowing both ways from the equator. These under currents coming towards, as the upper currents move from the equator, become heated and filled with vapor of water at the equator, then rise and flow north and south as already explained. Thus the currents of air are incessant, in contrary directions, to and from the equatorial ocean,—the lower and heavier air flowing from north and south towards the equator, and the upper and lighter from the equator towards the north and south. These currents are called the upper and lower trade winds.

What becomes of the watery vapor wafted north and south from the equatorial ocean? Does it return with the air from the polar regions? No, not all. In a great measure it is condensed on reaching temperate and polar regions, and falls in rain or snow, returning to the ocean through the rivers and glaciers.

But why go to the equatorial ocean to explain evaporation in our fields? Because there the laws are illustrated on the grandest scale in nature; there the subject has been intelligently investigated and the laws understood; there no diversity of opinion exists; no blatant ignorance, in the garb of practical experience, invades that great domain; no mere theorist undergoes the toll and danger incident to the investigation. It is the arena of true science on this subject. The laws discovered there and elsewhere, in refer-

ence to evaporation, obtain and rule omnipotent in the fields and everywhere under heaven.

The locomotive converts water into invisible steam; when this steam escapes in the atmosphere it becomes visible by condensation into cloud; when the cloud mingles with dry atmosphere it dissipates; that is, assumes the form of invisible vapor. So also our lungs, like the equatorial ocean, exhale watery vapor. With every expiration of breath vapor of water is exhaled.

When expired into warm air it is invisible, as the vapor from warm fields or the ocean; blown into cold air it is condensed into visible cloud or fog in front of the mouth; expelled against cold glass it dims the glass with moisture or water. If the glass be very cold this water shoots into crystals of frost of definite shapes, forming apparently fantastic impressions of trees, architecture, &c.

When expelled against the moustache in the presence of intense cold it condenses into liquid and freezes into ice, which may be drawn into the mouth, melted and drank immediately after expulsion from the lungs.

In reference to the subject before us, we must always bear in mind that, under all natural circumstances, vapor of water exists in the *driest and hottest summer air*. We find it, as well as that expelled from the lungs, dimming and forming drops of water on cold glass or other vessels in a warm room or sunny field.

It rises, with heated air, from the warm fields as from the equatorial ocean. As it rises, cooler air, laden with vapor, flows in from the margins or mountains. This becomes heated on the field, rises, and rising *expands*, cools again by *expansion* and contact with colder currents of air, and condenses into fog or clouds. On further cooling and condensation, the minute hollow globes that form the clouds coalesce into rain drops, or shoot into crystals of snow, &c., and fall, again to go through the same evolution under the same conditions of heat at all times and places under heaven.

We will now consider a peculiarity, or rather a principle or law of evaporation, (the importance of which, as well as of what has already been said, will afterwards fully appear,) in reference to the place from which it proceeds from moist bodies as the soil, or liquid bodies as the ocean, &c.

#### Evaporation Proceeds only from the Surface.

The quantity, therefore, that will evaporate under the same conditions of heat and moisture in the soil, or other evaporative body, depends not so much on the quantity of water present as upon the *area of surface exposed*. The equatorial ocean, if kept at a depth of three feet, would evaporate as much water as at its real depth, if the quantity of surface exposed were the same.

Place a gallon of water in a tall jar, say two feet in length, with the open top exposed to the sun, and a long time will be required to evaporate all. Pour the same quantity into a flat vessel, as a large waiter or tin tea-board, exposing a hundred times more surface, and all the water may be exhaled in one day, while a hundred days would be required for its exhalation from the narrow small-mouthed vessel.

To assimilate the circumstances to the soil will not vary the result; for example, fill the vessels with porous earth or soil. Saturate the soil with water and expose to the sun in the field, and whatever of water may evaporate from the soil in these vessels, will be a hundred times longer in exhaling from the deep than from broad shallow vessels.

Take a more familiar example: a pint of water diffused in a large tin waiter will evaporate away in a day's sunshine; in an ordinary pint cup it will last a long while; and why? Because there is great surface exposed in the former and little in the latter case. If there be soil in the vessels the result is the same, so far as the evaporative force overcomes adhesive attraction, and thus deprives the soil of its water.

In the light of what has been said if it should appear that, by one system of cultivation, 80,000 lbs. of water is lost by evaporation from one acre of soil in one season of six months, and that by another system, equally cheap and far better in every other respect, this quantity of water would be saved for the plants, what shall we say of a farmer who, while his plants suffer for water, wilfully ignores the conservative, and practices the destructive system? We propose to show that this waste of water is actually incurred, wilfully or ignorantly, throughout our country.

But what magnitude of evil actually attends the silent invisible process of evaporation in agriculture, and whence the necessity, and what the means of its restraint *in the fields*? Let me first examine the actual

#### Loss by Evaporation.

According to the observations of Dickenson, through a period of eight years in the moist climate of England, where evaporation proceeds more slowly than in our dryer atmosphere, 90 per cent. of the water falling from April 1st. to October 1st. evaporated.

One tenth passed off through the drains, while nine tenths changed to vapor and escaped invisibly. The total quantity that fell was about 2,900,000 lbs. per acre, of which more than 2,600,000 lbs. evaporated.

By average during a single season of six months, from April to October, the loss per acre was 325,000 lbs., or at the rate of 5,500 lbs. per acre per month.

An acre of soil as smooth as a floor exposes a surface of 43,560 square feet. By the levellest cultivation possible, with the most appropriate implements, the quantity of exposed surface is inevitably much increased. The same soil, thrown into ridges and furrows, or in hills around the plants, so as to double the quantity of surface, (inevitably exposed) would present 87,120 feet, or two acres of soil to evaporation on one acre of land; thus, through ridging, &c., double the necessary quantity of water is taken from the plants and exhaled to the air. Is there any excuse for this in a country annually in prayer for rain?

But perhaps the ordinary furrows of shovel plows will not double the exposure. We may, however, safely assume, that taking an acre of soil as flatly cultivated as practicable as the basis, the same cultivated with shovel plows will

expose on the slopes of the furrows one-fourth more surface to direct evaporative influence, thus adding 25 per cent. to the quantity of water exhaled.

Even this, according to Dickenson's observations, would amount to 650,000 lbs. of *unnecessarily evaporated* water per acre in eight seasons, from April to October; or 81,250 lbs. per acre during one season of six months,—all for the delectable custom of furrowed cultivation.

These figures represent simply the increased unnecessary quantity, over that inevitably lost by the levellest possible cultivation.

By the same estimate we find a loss from 100 acres, in one season from April to October, of the enormous mass of 8,125,000 lbs. of water, which actually occurs on a majority of the larger farms in our country. Furrowed cultivation and this annual loss prevail with a majority of farmers in every State of the Union.

Extended over our vast country, as it is to-day, this penalty of ignorance is absolutely appalling. With the extension of agriculture, the invisible retribution intensifies and expands, insidious as the toil of the ephemeral architect, whose countless habitations reef the sea with mountains.

If we have carefully studied and comprehended the processes already described, we know the disease and have been partially introduced to the remedies; and only partially, for the remedies consist not only in preventing the escape of water, but in encouraging and *enforcing its formation in the soil*,—of which, hereafter.

The subject of carrying crops through droughts—of more concern than any that now confronts the farmer, has, so far as I am aware, been generally worse than ignored by the books and journals. They have not been wanting in columns, by the mile, devoted to phantasmal schemes for averting the inevitable; in vain speculations about inducing more rainfall; in seducing our investigations from the soil, where we exercise dominion, to the heavens, over which we have no practical control; and the result of all is to let a practice go unrebuked that allows, nay *compels*, the escape of water from the soil into clouds; and the remedy offered is to plant our fields in trees; create anew the forests, to attract the clouds and *bring them down again*; to force them up and then down, by equally absurd practices.

The true remedy, always at hand to cut off the disease at its source, easy as the practice that fosters the malady, is novel to most of our agricultural readers, or so lightly treated of as to attract no serious attention.

I do not speak in indiscriminate derogation of the agricultural press, for I am chiefly indebted to it for the little I have learned. But may we not have a letting up; a new awakening on this subject; a coming down from the clouds, and away from the forests, into the sunny fields, there to create, instead of exhaling water?

To trace the causes of rain for legitimate practical purposes is highly useful, for it discovers the grand secret of success in growing plants, the process of *converting aqueous vapor to liquid water*. But, for the purpose of forming clouds in the heavens, and converting these into rain by means within human control, it is simply



absurd, for the very process proposed involves the surrender of agricultural interests.

A less destructive, if not more feasible plan, would be to fire cannon for the production of atmospheric commotion and consequent clouds and rain. Indeed to institute a general state of war, and kill off the inhabitants with heavy ordnance, which is said to promote rain, would be no more ruinous in ultimate consequences, than the return of fields to forests.

It is true the wearisome pages about planting forests to bring back from clouds or ocean, the water we waste, are not likely to produce *direct* mischief, in our mountain country at least; for the utmost dissemination of absurdities will hardly transform a farmer into such a fool as to adopt the scheme; but the tendency is to lead us astray from the real remedy ever present within our power.

When the inhabitants of a city, like the plants of the field, suffer for water, do the savans or even the city fathers adjust their spectacles and examine silly speculations about planting trees to form and attract clouds, or to draw down rain, and resolve to turn the city, or a part of it, into forest? On the contrary they wisely look to means consistent with the permanence and enlargement of the city, and within control,—pass ordinances *restraining waste*, and draw water from additional sources.

So we must find means consistent with the enlargement of agriculture, and within human control,—restrain the waste of water from our fields, irrigate them from the mountain streams, and above all, manufacture water *in the soil*, and not in the heavens.

Early in life I had fortunately learned the office of the silk and tassel in the production of corn grains; that the tassel contained the male organs, and the silk composed a part of the female organs of reproduction; that in order to produce a grain, pollen from the tassel must come in contact with the end of the silken cord sent up from the grain sack or ovary on the cob, and through this be conveyed to the ovary for its impregnation, preparatory to the formation of a grain. By this I was enabled to account for the fact, observed in boyhood, that a single stalk of corn, isolated from other growing corn, *usu* presents many "blasted grains," that is, many of the grain sacks, arranged in rows on the cob, remained flat *for want of fertilization*; much of the pollen grains being blown away, these ovoid sacks were left without access, and of course never "filled."

Later in life I purchased a highly respectable book entitled "Bridgman's Gardener's Assistant" at the price of \$2.50, enough to purchase 30 numbers of the journal under whose auspices we confer to-day. With much useful culled information in original matter, it is conspicuously unfortunate. In minute directions how to grow different varieties of corn without mixing, this book advises that the silks be carefully bound in muslin, or the tassels be cut off before shedding their pollen, thus preventing access of the reproductive organs. And so on the same principle and advice, to prevent the mixing of different breeds of hogs, we should spay our female breeders or prevent access of males, and thus

produce not one grain of corn in the garden, nor a single hog on the farm, of any variety or mixture. Thus we could prevent droughts, and also the production of grain and grass, by turning fields to forests;—and thus we learn the danger of swallowing, whole, even respectable books, good and bad, edible and baneful parts together.

The day has been when sufficient water fell to supply the plants notwithstanding the most prodigal waste; and so, manures were a nuisance, stock penned on slopes to wash away the excrement, and straw burnt, as to-day in the West, and heavier crops sprang up than we can now produce, with all this saved, and much more imported. But, in the old States, these things have passed away forever. Forests and rains of a thousand years might restore, as they created fertility. But food and raiment cannot be grown in forests, nor in rains.

Nor will idle hands, clasped in mockery of prayer, bring rain, when the Master knows we bury the talent already given, in the waste of what He sends. If we blindly pray for rain, let us hie to the forests, where vain petitions seem to meet response ere reaching Him who heareth not the prayer of slothful ignorance, nor worketh miracles where the operation of His beneficent laws, directed by intelligent labor, supplies our daily wants.

Let our efforts and our prayers be in the way of knowledge, which He knows we need, and they will meet response in abundant harvests, without especial floods.

We must not only learn to save, but also the means of forming water, without clouds or rains, *in the soil*. Is this possible? Precisely the same necessary forces operate in a well cultivated soil, that produce the clouds and rain overhead;—the watery vapor, the heat, the condensing chill, all the circumstances necessary for the production of water, are on and in the soil; and the vapor is renewed as it condenses into water, in the soil, precisely as the equatorial winds supply the atmosphere with watery vapor from the ocean.

Our time is more than up. We will next examine the subject of forming water in the soil, and the influence of *weeds in accelerating evaporation*.

Shenandoah Co., Va.

L. H. MCGINNIS.

### Farming a Live Business.

Every one admits that in the last quarter of the century farming has been wonderfully advanced. Science has been brought to bear on it. Great inventions in the way of machinery. Nearly all work can be better and quicker done with the new implements. Farmers generally have paid more or less attention to chemistry, mechanics and botany. In addition to the working of the soil attention has been turned to fruit culture, picturesque and ornamental gardening and the other surroundings. In fact, taste, judgment and economy have joined and gone hand in hand in the general advancement.

All these things have not been brought to bear too soon for the good of the country. In old times they had men of judgment and taste who did much in their way to elevate farming, and

deserve much credit. So things were before the general improvements in the application of the arts and sciences, in manufactures, railways and canals. Labor was abundant and had not fallen into the channels of internal improvements, but was contented to abide on farms and receive what the farmer could afford to pay.

The great panacea, the manure pile, was rivaled by clover and plaster. Lime soon came, then Peruvian guano and other manipulated fertilizers, good, bad and indifferent. Now, superphosphates, nitrates, ammonia, potash, &c. Valuable single articles can be obtained and mixed to make the required fertilizers for the different kinds of lands. The intelligent farmer can make his own fertilizer to any strength his land may require.

No one will throw anything in the way of husbanding all the resources the farm affords in the elements of fertilization. But few farms possess the requisite quantity. Let all be hauled out and spread on the surface; if insufficient, superadd some fertilizer. A crop of clover turned under and sowed to wheat will most likely afford a good yield.

It should not be forgotten that the seeding and planting times should be strictly attended to. The farmer at that time should be ready for putting in his grain; a few days sometimes make a great difference in the yield.

Good fences make good stock and good stock good neighbors, and vice versa. When Providence favors the farmer he should take care of his crops. When they are converted into money, let the money be applied to clear away indebtedness. Credit is a good thing and should be protected. The punctual man holds other men's purse-strings. A man may have many friends but none better than his money. An old man wanted his son to do well, and told him to aim at the moon if he only hit the house-top. So aim to be rich if you only attain independence.

Let the beginner take courage by what I say about a poor boy that became rich. When becoming a man he worked for four dollars a month and laid by some at that. He worked, laid by money, and had the respect and confidence of his acquaintance. With his good sense and determination, in course of time he purchased land, married and raised a family. Many years ago I rode in company with a young man who was from his neighborhood. We rode around, I wishing to buy stock. We soon passed a nice farm, good buildings, lawn, orchard and garden. I inquired who owned the estate. He replied: "Old Mr. S." In course of our ride we passed another fine farm belonging to the same, and yet another belonging to the same individual. One might ask why the above could not be dittoed. Echo says, why not?

RUSTIC.

[The day we received the above we noticed the following in one of our dailies, copied from the *Easton, Talbot Co., (Md.) Star*, which we annex as a suitable accompaniment to our correspondent's remarks:]

"Mr. William Myers has bought of Captain E. K. Cooper, of Baltimore, the homestead of the late Gen. Tench Tilghman, known as 'Plimhim-

mon," situate in Oxford Neck, Talbot county, three hundred acres, for \$16,000, paying over half the purchase money cash down. We remember very well, some forty years ago, when Louis Myers, the father of Mr. William Myers, came to this country fresh from Germany and engaged to work as a poor laborer to General Tilghman on "Plimhimmon." He remained on the same farm, or in the immediate neighborhood, during the balance of his life, and made and saved money. His two sons succeeded him, and have been industrious and economical farmers. Mr. Louis Myers lives on a farm he owns in Ferry Neck, opposite Oxford, purchased, we believe, by his father in his lifetime. Some time ago, Mr. William Myers, the other son, bought of Dr. S. A. Harrison the farm in Oxford Neck called "Anderton," the former residence of the late James Thomas. And now he has bought the splendid estate upon which his father labored when he first came to America. Mr. Myers is an intelligent and prosperous farmer, and his wealth has been acquired by the sweat of his brow. He has made money, and made it fast, by renting land, which shows that industry and economy will pay as well by farming here as anywhere."

## Our French Letter.

### The Cheese Dairy.

*Messrs. Editors American Farmer:*

Meaux is perhaps better known for its celebrated cheese, Brie, than for its famous bishop, Bossuet. In this district, comprising an area of 30,000 acres, some 12,000 cows are farmed, to produce a specialty of cheese, representing an annual trade of fr. 6 millions. Other departments of France commence to compete with Meaux, and successfully also. The Normand breed of cows proves to be best adapted for producing the milk for Brie cheese, being peculiarly rich in caseine; in addition, the animal can ultimately be easily fattened for the butcher, the meat being much esteemed. Dutch cattle yield a more copious, but less rich, quantity of milk; the latter ought to be of a thick nature, secured by the breed of the stock and the nature of the food. Nothing has been found superior to bran, given at the rate of six pounds daily, to secure the desired quality of milk, and nothing is so detrimental as beet pulp and distillery stuff. Bran and mill finings will correct largely the thinness of the milk, but not the absence of delicate flavor. Cooked food or warm drinks are to be avoided; they produce a poor milk, and undermine the health of the animals. In case a beet diet be over-fermented, the fact tells on the flavor of the cheese; so does colza cake, but not linseed or cotton cakes; a handful of salt is given daily to keep the appetite from flagging. Under no circumstance is the daily ration of bran suppressed. According to M. Doyère, the caseine varies with the breed of cows from 2 to 4½ per cent. The coagulation of the milk is effected by rennet, or by a specially-prepared pepsine which has the advantage to be of a uniform strength. The curd ought to be allowed to drain from 12 to 24 hours, and only salted when this drainage has been judiciously made.

The Brie cheese is in the form of a cake 15 inches in diameter and less than one inch thick. The cheese is considered to be perfectly prepared when it presents a peculiar bluish tint, veined with red. After the cheese has been properly drained and salted, at the end of eight days a kind of white velvet appears on the surface, becoming blue a few days later. Too great heat or cold prevents the cheese acquiring the desired color; when badly drained, or salted too late, the cheese liquifies and presents a reddish aspect. After being salted, the cheese ought to be removed to a drier room, and changed again to an apartment still drier, when the blue is well developed. To avoid worms, every precaution must be taken to keep away flies, by the employment of fine gauze wire for the windows, by double doors, or the intervention of a dark corridor. The cheese is packed in wicker baskets, or, better still, deal boxes, for the market. Though France possesses some fifteen varieties of cheese, Brie, Roquefort, made from sheep's milk and called the French Stilton, Camembert, and Neufchatel-en-Bray, are among the most esteemed. France imports annually cheese to the value of fr. 5 millions from Holland, and fr. 8 millions from Switzerland. At Thoune, in the latter country, an establishment exists since 1873, specially devoted to the teaching of the best methods of fabricating the products from milk.

#### Wool, Meat and Sugar

Are three cardinal questions, with French farmers especially. The area of France is 138 millions of acres, of which one-tenth is under natural pasturage, one-seventh under meadows, nearly one-eighth under forests, and the rest is arable. There is about one head of black cattle per 12 acres, whereas the average is one head per 2½ acres where a farm is fairly cultivated. Sheep farming is on the decline; there were 33 millions of sheep in 1852, now there are but 23. Australian and South American wool prevent, from their cheapness, all competition on the part of French agriculturists, who very wisely prefer the production of precocious mutton, and also of beef and veal.

#### Beet Sugar in Europe.

The state of the beet sugar industry of France, as compared with other European countries, is regrettable. The revenue derived from native sugar, by the treasury, was fr. 53 millions in 1876, and but fr. 28½ in 1877. The revenue derived from colonial sugars remains invariable over fr. 11 millions. In 1876 there were 520 sugar factories at work; in 1877, 496. The exportation of raw sugar has diminished by fr. 17 millions, and of refined by fr. 12 millions during the present year, as compared with 1876. The sugar industry is very languishing, both in an agricultural as well as in a fiscal point of view, and the future is not at all encouraging. The real cause of the unhappy position of beet growers and manufacturers, is owing to the poverty of the juice. The custom officers recognize that 23 gallons of juice, supplemented by water, represent 2 cwts. of roots, and this juice represents 4.91 per cent. of sugar, as a mean average. This feeble per centage is the almost sole cause of the inferiority of the sugar industry

of France. Worse, this deficiency, recognized since twenty years, is on the increase. If the manufacturer could obtain a root yielding a juice rich by 6 to 7 per cent. in sugar, he might defy the world; and pending this desideratum it is impossible, despite all the mechanical ameliorations effected, for France to escape from her chronic sugar crisis. The employment of bad seed, the abuse of manures, the absence of a methodic system of culture, are the causes of this decline. In Germany, where climatic differences are not very great, as compared with the north of France, the beet-growing region, the contrary history is to be encountered. In 1840-'1, according to Dr. Scheibler, German beet-growers only obtained 5.88 per cent. of sugar; to-day the yield is 8.33. An increase in the price of sugar will not benefit French cultivators, so long as they do not try to ameliorate the saccharine value of the roots; instead of something like wasting time determining the value of the juice, it would be more rational to study the means for increasing its richness. The area of land under beet this year in France has diminished by 20 per cent.; thus the country is ceasing naturally to export sugar, and Russia, Austria and Germany take the lost place of France in the foreign markets. In the first three countries the yield of sugar is about the same, 8 per cent., but in the case of Russia and Austria the governments accord bounties; Austria intends to abolish these, by reducing the taxes on the machinery for extracting the juice.

#### Agricultural Machinery.

The importance that agricultural machinery has taken of late years, has led some agricultural societies in Belgium to hold the implement at a different date from the cattle show; thus farmers will not have too great a tax on their attention. In Germany special fairs are held for agricultural machinery, and in Italy the government has fixed depots for implements, and, as in France, attention is most directed to mowers and reapers. In Italy also the rearing of barn-door fowls has taken an important extension; in 1876 the country exported eggs to the value of fr. 25 millions, or fr. 15 millions more as compared with the year 1875.

#### Merino Sheep.

At the late agricultural show at Compiègne, a problem much desired by French farmers to be solved, has been, and to all appearances successfully. M. Duclert has so modified his Merinos, that they have acquired the property of remarkable precocity without affecting the superior qualities of the fleece. He obtained first prize for a ram, and the second for young ewes; the ram was aged 38 months, weighed 23 stones, the fleece 22 lbs.; the ewes weighed 13 stones, and the fleece 15 lbs. The average weight of the fleeces—the wool is fine and elegant—is 14 lbs. It is nearly one hundred years since the family of the exhibitor commenced ameliorating the breed.

#### Seed Potatoes.

The Germans devote much attention to experiments on seed potatoes. Stebler lays down that the tuber is an underground branch, and the eyes at the summit, the terminal buds of a branch; and like all such buds stronger than the

lateral ones, hence the conclusion, select large tubers for seed, never cut them longitudinally, but plant whole, removing all the lateral eyes, those at the summit alone producing the most vigorous plants, and consequently the largest yield. Rimpaw, Janosky, Drechsler, &c., recommend the exposure of the seed tuber before planting to light and air, and to plant at a distance of 28 by 14 inches for the average quality of soils. Except the mineral substances, all the fixed matters in the tuber are primarily formed in the leaves.

F. C.

Paris, July 26, 1877.

### Valuation of Fertilizers.

From the officers of the Connecticut Agricultural Experiment Station, now located at New Haven, under the direction of Prof. S. W. Johnson, we have circulars giving instruction for taking samples of fertilizers, &c., explanations of terms used, &c. We make the following extract which contains information of general and great interest:

*Nitrogen* is commercially the most valuable fertilizing element. It occurs in various forms or states. *Organic Nitrogen* is the nitrogen of animal and vegetable matters generally, existing in the albumen and fibrin of meat and blood, in the uric acid of bird dung, in the urea and hippuric acid of urine, and in a number of other substances. Some forms of organic nitrogen, as that of blood and meat, are highly active as fertilizers; others, as that of hair and leather, are comparatively slow in their effect on vegetation, unless these matters are reduced to a fine powder or chemically disintegrated. *Ammonia* and *nitric acid* are results of the decay of *organic nitrogen* in the soil and manure heap, and are the most active forms of nitrogen. They occur in commerce—the former in sulphate of ammonia, the latter in nitrate of soda.

*Soluble phosphoric acid* implies phosphoric acid or phosphates that are freely soluble in water. It is the characteristic ingredient of super-phosphates, in which it is produced by acting on "insoluble" or "reverted" phosphates with oil of vitriol. It is not only readily taken up by plants, but is distributed through the soil by rains. Once well incorporated with soil it shortly becomes reverted phosphoric acid.

*Reverted (reduced or precipitated) phosphoric acid*, means strictly, phosphoric acid that has been freely soluble in water, but from chemical change has become insoluble in that liquid. It is freely taken up by a strong solution of ammonia citrate, which is therefore used in analysis to determine its quantity. "Reverted phosphoric acid" implies phosphates that are readily assimilated by crops, but have less value than soluble phosphoric acid, because they do not distribute freely by rain.

*Insoluble phosphoric acid* implies various phosphates not freely soluble in water or ammonia citrate. In some cases the phosphoric acid is too insoluble to be readily available as plant food. This is true of the South Carolina rock phosphate, of Navassa phosphate, and especially of Canada

apatite. The phosphate of raw bones is nearly insoluble in this sense, because of the animal matter of the bone which envelopes it, but when the latter decays in the soil the phosphate remains in essentially the "reverted" form.

*Potash* signifies the substance known in chemistry as potassium oxide, which is the valuable fertilizing ingredient of "potashes" and "potash salts." It is most costly in the form of sulphate, and less so in the shape of muriate or chloride.

*The valuation of a fertilizer* signifies ascertaining its worth in money, or its trade value,—a value which it should be remembered is not necessarily proportional to its fertilizing effects in any special case.

Plaster, lime, stable manure and nearly all of the less expensive fertilizers have quite variable prices, which bear no close relation to their chemical composition; but guano, super-phosphates and other fertilizers, for which \$40 to \$80 per ton are paid, depend chiefly for their trade-value on the three substances, *nitrogen*, *phosphoric acid* and *potash*, which are comparatively costly and quite steady in price. The money value per pound of these ingredients is easily estimated from the market prices of the standard articles which furnish them to commerce.

The following are the "estimated values per pound" of the ordinarily occurring forms of nitrogen, phosphoric acid and potash, as recently found in the New York and New England markets:

	cts. & lbs.
Nitrogen in ammonia and nitrates.....	24
" in Peruvian guano, fine steamed bone,	
dried and fine ground blood, meat and fish...	30
" in fine ground bone, horn and wool dust...	18
" in coarse bone, horn shavings and fish scrap	15
Phosphoric acid soluble in water.....	12½
" "reverted" and in Peruvian guano...	9
" insoluble, in fine bone and fish guano	7
" " in coarse bone, bone ash	
and bone-black.....	5
" in fine ground rock phosphate.....	3½
Potash in high grade sulphate.....	9
" in kainite, as sulphate.....	7½
" in muriate, or potassium chloride.....	6

These "estimated values" are not fixed, but vary with the state of the market and are from time to time subject to revision. They are not exact to the cent or its fractions, because the same article sells cheaper at commercial or manufacturing centres than in country towns, cheaper in large lots than small, cheaper for cash than on time. These estimated values are high enough to do no injustice to the dealer, and accurate enough to serve the objects of the consumer.

By multiplying together the "pounds per ton" of nitrogen, &c., by the "estimated value per pound," we get the "estimated value per ton" of the several ingredients, and adding the latter together we obtain the "total estimated value per ton."

The *agricultural value* of a fertilizer is measured by the benefit received from its use, and depends upon its fertilizing effect, or crop-producing power. As a broad general rule it is true that Peruvian guano, super-phosphates, fish scraps, dried blood, potash salts, plaster, &c., have a high agricultural value which is related to their trade value, and to a degree determines the latter value. But the rule has many exceptions and in particular instances the trade value



cannot always be expected to fix or even to indicate the agricultural value. Fertilizing effect depends largely upon soil, crop and weather, and as these vary from place to place and from year to year, it cannot be foretold or estimated except by the results of past experience, and then only in a general and probable manner.

### Devon Cattle.

The portrait on the opposite page, of a fine Devon cow and calf, will be recognized as a faithful and well-executed representation of this valuable breed of cattle. We, in Maryland, have reason to be proud of the part taken by some of our public-spirited farmers in the introduction of the race into this country. The first importation, it is believed, was made into this port in 1817 from Mr. Coke, (afterwards the Earl of Leicester,) one of their most celebrated breeders in Great Britain. It consisted of a yearling bull, named *Taurus*, and six heifers of the North Devon breed. They were a present from Mr. Coke to Robert Patterson, an eminent merchant of Baltimore during the early days of the present century. This gentleman gave three of the heifers to his father-in-law, Richard Caton, of Baltimore, and the other three to his father, Wm. Patterson, and the bull to the two jointly.

Mr. Caton's herd was not long kept up, and when the last of it was sold, after some years, the senior editor of the *American Farmer* purchased several of the cows to ship, as numerous others from the same herd had previously gone, to friends in the South.

Mr. Wm. Patterson's animals were placed on his "Springfield" estate near Sykesville, in Carroll county. Two of the heifers had been bred to a bull of Mr. Coke's before they left England, and the third was bred to *Taurus* after their arrival in this country. Upon the death of Wm. Patterson, in 1833, "Springfield" with the Devons became the property of his son, Geo. Patterson, who at once wrote to the Earl of Leicester that he was the owner of the stock descended from *Taurus* and the heifers given his father some years before, and that he was anxious to procure a good bull for a cross of fresh blood. The Earl of Leicester soon sent out the bull *Anchises*, (No. 140 E. D. Herd-book,) which had been brought for his own use from one of the best dairies in Devonshire. Upon this foundation the celebrated Patterson Herd was established, Mr. Geo. Patterson continuing to import from the best milking herds in England every three or four years, until his death in 1869, when the herd was offered for sale. The last imported bull and thirty-three of the heifers were then bought by Stephen T. C. Brown, who was probably one of the best judges of live stock our State has ever known, and in his hands the herd maintained its old reputation until his death in 1876. The magnificent show of these beautiful and symmetrical animals at the Exhibitions of the State Agricultural Society is recalled by all who saw them.

It is unfortunate that the Devons are losing popularity in our section. Their hardy constitution particularly adapts them to the climate of the South; when bred with reference to their

milking qualities, they give a good and rich supply; as oxen they are unapproached by any other cattle for quickness and docility; while for supplying beef of the finest flavor and juiciest texture they are unequalled by any other cattle. They deserve to be rescued from the neglect now shown towards them.

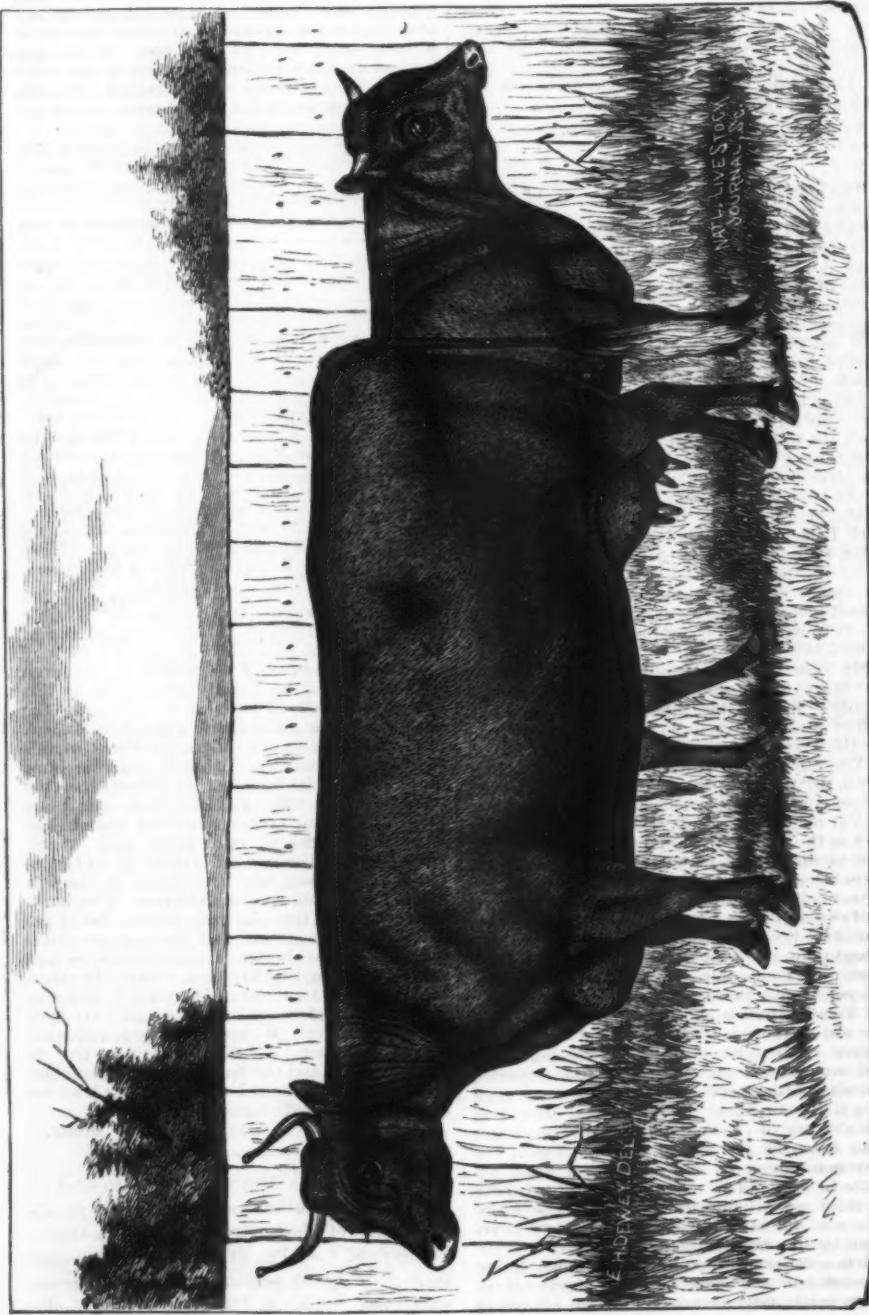
### The Grange in Maryland.

The following is a communication from the W. Master Maryland State Grange to the *Grange Bulletin*:

The order in Maryland is not standing still, although, like many of our sister States in our mushroom organization, we planted in some sections too many subordinate granges, and in some instances paid too little regard to Article V. of our constitution, hence the consolidation of a few granges and the revocation of the charters of others, but the remaining granges are generally in a healthy condition, and every one now retaining its charter has received the A. W. for the current year. Our greatest difficulty is the want of interest, as shown by the individual members in attending the meetings of their respective subordinate granges. Many good and true members of our order at heart, who would be almost insulted if told the order is dying, do not seem to be fully impressed with the fact that the rank and file make the subordinate granges, and that the most important duty of a member is to be prompt and regular in attending meetings. While I have no idea that the order will die (any more than masonry) I am sure if it ever even weakens, it will be directly attributable to this one cause—lack of interest in attending the meetings of the subordinate granges. No one, not familiar with the different sections of this State, can form an idea of what the order has done for us in its social features. In former times the farmers of the different interests in our State knew little of each other, and even less of their respective modes of cultivating their varied crops; besides this, we are divided by the Chesapeake bay, crossing which we find on the eastern shore the garden spot of America. The order has brought all these different interests into close and fraternal relations, and through our State meetings we have become acquainted and learned to know and appreciate each other. In short, the agricultural interest in Maryland is united as it never was before, and never would have been but for our order. We are gradually learning the lesson that general and individual prosperity are closely united, and the future is growing brighter before us. In my next I will tell of our business interest, for we have made the order pay.

Fraternally, JAS. T. MOORE, Master.

LARGE GRANGE MEETING.—We attended on the 23d ultimo an immense meeting and picnic of Patrons of Husbandry at Williams's Grove, Cumberland Co., Pa., at which it is estimated there were 10,000 persons present. Addresses were made by W. M. Piollet, of Pennsylvania; Kitchen, of West Virginia, and others.



The Devon cow Maggie Morris, No. 1,884, and her calf Taurus at 10 months old. Owned by L. F. Ross, Avon, Ills.



## Flat Cultivation vs. Ridges.

*Editors American Farmer:*

It may seem presumptuous in one of so little agricultural experience to call in question the theories or facts of such veteran farmers as your contributor from Shenandoah county, Va., L. H. McGinnis, yet with your permission I cannot refrain from having my say: "*audi alteram partem*."

In our "book farming" we often fall into the error of stating principles and facts with authoritative dogmatism, and forget to mention any conditions which may essentially modify the principles or render them wholly inapplicable. Such, I am disposed to think, is the case in the valuable article of brother McGinnis, "The true theory of Farming," in the July number of your excellent journal.

While the principle of evaporation and its general influence on growing plants is correctly stated, no allowance is made for difference of soil or climatic variations.

In March I planted a small plot of land in Early Rose potatoes. One-half was planted in ridges, the other kept flat. In all other respects the treatment was identically the same. They are now harvested. The furrowed part yielded large, well-shaped tubers; the product of the other part was a quantity of roots, varying from the size of a pea to that of a pigeon egg, with here and there a good-sized potato of any shape the imagination can conceive. I have now one such before me. Its length is 6½ inches, its greatest circumference 8½ inches. It is a mother potato, and growing out of it, and attached to it, are eight potatoes, varying in size from a pullet's egg to a pea. Another is a fair-size potato, circular in shape and flat as a pancake. The difference in quantity is, as may be inferred, equally noticeable, and yet not equal to the disparity in quality,—the ridges turning out a half peach basket to the row more than the flat land, and of a white, dry, mealy quality, far superior to the others, though cooked precisely alike. Now here is experience vs. experiment—experience clashing with experience. How shall we reconcile the one with the other? Is brother McG. wrong in his theory? No, for his theory is drawn from his experience, and is based on scientific principles. The difference is in the conditions of the experiments, which, in his "True Theory," are not stated. My land was not light and porous, and the crop had the benefit of heavy and frequent rain-falls. The ridges shed the surplus water; the flat land retained it. The ridges favored evaporation, which the quality of the land and the season made requisite; the flat land, saturated with superabundant moisture, pressed upon the growing tubers and prevented a symmetrical growth, forcing them to assume shapes as far from the line of beauty as possible. The caterers for the large hotels in New York, when on the lookout for good potatoes, invariably seek for those grown in a sandy or otherwise light soil; not only on account of better size and shape, but on account of their superior quality.

Hence the conclusion to which I come—cultivate stiff land in ridges; light land level. If the season is wet, ridges are better; if dry, flat tillage

will be found better. Again: although the Englishman's peas, beans, cucumbers, melons, &c., exceeded those of brother McG.'s in growth and product, I am not sure that it would answer as well for all crops—sweet potatoes, for instance.

In short, when writers undertake to lay down certain fixed rules for the cultivation of crops, their readers are liable to be misled, unless the conditions and exceptions are also stated. No general rule in farming can be made applicable to all cases. In other avocations men are guided and governed by surrounding circumstances; why not as well so in agriculture?

I must add a word of encouragement to you in your efforts to secure for the State an Agricultural College, in which the theory and practice, the science and the art of farming may be acquired by sons of farmers, even though they may be forever ignorant of the niceties of grammar. I think it would not be impossible, nor indeed difficult, to find young men who have attended our Agricultural College—save the mark!—who do not know the land-side of a plow from the share or coulter;—who know no more about the time when to sow and when to reap wheat or timothy than a London cockney would know of navigating the South Polar Sea. Let us have a College! Let it be an Agricultural College! Your position is, in my opinion, impregnable. St. John's and Washington are in no need of rivals. We have colleges enough. What is now needed, and sadly needed, is a place where boys may learn how to till the land.

HERETIC.

Kent County, Md., August, 1877.

## A Grange Pic-nic.

*Editors American Farmer:*

A Grange Pic-nic of the Granges of Montgomery county, Md., was held on the Fair Grounds at Rockville, Saturday, August 18th. A band of music was in attendance. Weather rather warm, but fine and pleasant. The attendance was large and the farmers well represented; besides a good gathering from the village. About 11 o'clock the meeting was called to order by W. M. J. F. Moore, who introduced as the first speaker Bro. J. B. Averitt, of Bethesda Grange, who alluded graphically and ably to the moral and educational character of the grange movement and its necessarily elevating influence as a social institution by virtue of its female membership, and high tone of the agricultural class who compose it. His remarks were highly intellectual and were well received by the large audience. He was followed by Bro. Wilson Magruder, of Olney Grange, who delivered an able discourse, taking exception to some public criticism of the grange, and also to the apathy which some farmers exhibit. The society designed to advance their interests and promote their happiness; he thought farmers should take an active part in legislative bodies.

We hope this address will be published in full. A recess for the feast followed, and the abundance of good cheer and the liberality with which guests were served show the innate generosity of the farmer's character. Upon re-assembling Bro. Jas. S. Robinson, W. L. of Md.

State Grange, took the stand, and spoke at length on the nature, instrumentalities and objects of the grange. He also alluded to the cause of the insufficient attention paid to the farmer's interests by legislative bodies, which he said could be remedied by a proper appreciation upon the part of the farmers of their own duties in the premises. At this point of his remarks, Bro. Wilson Magruder, who was on the outside of the audience, interrupted the speaker, assented to the statement, and with the boldness of a strong knight in a good cause declared that so long as farmers would not take hold themselves to secure proper attention to their rights, they would have good ground of complaint of the prevalence of maladministration of public affairs. The remarks of Bro. Robinson closed the exercises, which were interspersed with music throughout, and the people returned to their homes in the cool hours of a pleasant evening, with a pleasant memory of a well-spent day.

D. L.

### Shallow and Deep Milk-Pans.

*Messrs. Editors American Farmer:*

I am surprised to find so many advocates for shallow pans, especially as no plausible theory can be given in their favor, while certainly much can be said in favor of the others. Some years ago, when the milk began to flow, and butter made its appearance on the old worn-out Rock Hall Farm, I was requested by the lady in charge of it to send her some milk-pans, with the positive instruction to be sure and send shallow pans, giving as a reason the cream would rise and make better butter quicker. A supply of the desired pans was sent to her, and, as the warm season advanced, the writer when visiting the place often found the morning's milk sour at dinner and clabber at night, which, to a lover of good sweet milk, was a great annoyance and disappointment, and rendered a change for the better desirable, and the first thought towards that object was to enquire into the nature of milk, the cause of sourness, the raising of cream, formation of clabber, &c., as well as the cause of bad butter. In doing so, reasons, common sense, chemical knowledge, and the laws of specific gravity, led me to try deep pans, as common sense will teach me that a larger surface of an article liable to fermentations when exposed to the exciting cause,—heat and air, (oxygen,)—surely the disturbance would sooner take place, as is the case with broad shallow pans which expose so much of the milk to the air, which is soon acted upon, and an alkaline or neutral emulsion converted into an acid, one which in turn precipitates the caseine or cheese, forming clabber before the cream has time to ascend. I find much ignorance among many who have the handling of dairy products, and to them it may not be out of place to explain what milk is, its composition, nature, &c., and as it is a most important compound to young beginners as well as old ones, I will address a few lines to them:

Milk is an emulsion, that is, a mixture holding fat, (butter,) cheese, sugar, the inorganic elements such as phosphates, potassa, &c., in

solution or suspension in water. The fat or butter being in minute globules surrounded by a thin membrane, which is necessary to rupture to obtain the butter, as is done in churning. The fat being lighter than water must by the laws of specific gravity rise to the surface either in shallow or deep pans, and that same law will cause it to rise quicker in the latter, as the perpendicular height of the fluid increases the pressure on the lighter substance, cream, which soon begins to float, and having a smaller surface to cover, and being less liable to be acted upon than the other compounds, sugar and cheese, it acts as a shield by cutting off the air, the prime mover in all organic destruction.

Upon this theory deep pans were purchased, and to test the matter were placed alongside of the shallow ones with the same quantity of milk in them, and the result soon convinced the lady in charge that shallow pans should be classed among the many popular errors we daily meet with. No other argument could ever have changed her from the notion that shallow pans are the ones for making cream and butter. Since their use all have enjoyed sweet milk for dinner and supper; and unless it is very warm the milk is sweet the following morning, which gives ample time for the globules of butter to rise. The freer the butter is from the cheese the better; but above all things there must be no offensive smell of any kind in the dairy, as the cream, like all fat, has a peculiar power of absorbing odors, whether pleasant or offensive ones. Hence perfect ventilation must be obtained, and this subject I propose for a separate paper. Having succeeded in obtaining it in my dairy, it is equally important that the animal heat should be extracted as soon as possible, which all know how to do who have cool spring houses with running water; not having this, I have the next thing to it, which will be explained in the proposed paper. The shallow pans have long since "gone where the woodbine twineeth."

Rock Hall, Md., August, 1877. A. P. SHARP.

### A Cheap Instrument for Testing the Purity of Milk.

*Editors American Farmer:*

The ordinary hydrometer for testing milk is a very uncertain instrument, the principle of which is based upon the specific gravity of the fluid. The difference between milk and water is very slight, water being 1,000 and milk 1,012 to 1,020. The best test I think is to ascertain the percentage of cream, and to do so any one for a few pennies can make their own tester, and I propose the following simple plan for making one: For five or ten cents purchase a glass tube  $\frac{1}{4}$  inch diameter, 25 $\frac{1}{2}$  inches long—the quarter inch for the cork. On a strip of paper five inches long, divide into quarter inches and paste on the top of the tube; varnish with a solution of shellac in alcohol, or coach-body varnish, to prevent washing off, and your instrument is ready for use.

Fill with the milk intended for examination, set aside for twenty-four hours, and note the point between the cream and milk. Each quarter inch of cream represents one per cent. of

cream; the whole tube measuring 100 quarter inches. Good milk should have from 12 to 20 per cent. cream, some milk being much richer than others, especially from cows giving the least milk. Generally when cows are large milkers the emulsion has less per cent. of the fatty globules, water taking its course in that direction along with a larger proportion of casein: hence they are better cheese cows. In selecting milk cows I have used the French (Guenon) system with entire success, and cheerfully recommend the system without reference to the stock, price or a long foolish pedigree. *I have been there!*

A. P. SHARP.

Rock Hall, Md., August, 1877.

### Charcoal for Turkeys.

A California paper highly recommends charcoal for fattening turkeys, and says that it should be pulverized and mixed with mashed potatoes and corn meal, as well as fed to them in small lumps. It mentions that in two lots of four each, treated alike, and one lot given this mixture and the other not, there was an average gain in the weight of the first of one pound and a half each. In commenting upon this, another writer says: "While we condemn the practice of mixing the pulverized charcoal with the other food for turkeys, compelling them to eat it whether they want to or not, we have no doubt of the excellent effects of supplying them charcoal broken into small bits, especially when fat-

tening for market. We have had evidence of what we say, and for a number of years have recommended charcoal for this purpose."—*American Poultry Journal*.

### Answers to Correspondents.

(1.) "Are the 'Erminettes' a good breed? (2.) What are the the Pea-comb Partridge Cochins? (3.) Can any of the Bantams be kept with other fowls without mixing? Please answer through *American Farmer*.—VIRGINIUS."

1. No; the Erminettes are a made breed of no merit,—not even attractive in appearance.

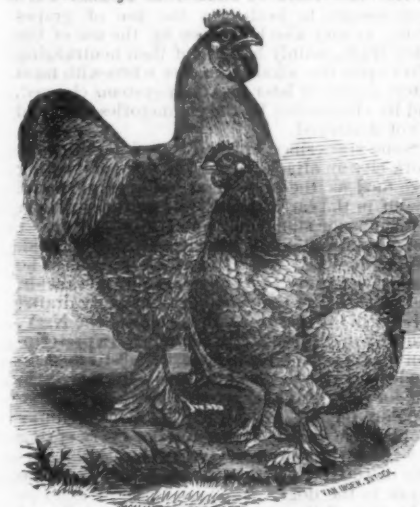
2. There is a variety of Partridge Cochins with Pea-combs, (same as Brahmas) but it is a "chance" bird, and will breed as many single as Pea-combs. Prominent breeders say Brahma blood is where the Pea-comb came from; if so, they would be unreliable in breeding standard plumage.

3. Yes; any variety of Bantams may be kept with the Asiatics without mixing. G. O. B.

SAVE THE BEST FOWLS FOR BREEDING.—The *Poultry World* sensibly says that it is the worst possible policy to kill all the best and handsome fowls, and save only the mean and scraggy ones to breed from. This is precisely the way to run out your stock; for like tends to breed like, and the result is, that by continually taking away the best birds, and using the eggs of the poorest, your flock will grow poorer and poorer every succeeding year.

### Cochins.

Next in rank to the Brahmas, of the Asiatics, come the Cochins. There are four varieties, viz: Partridge, Black, White and the Buff Cochins. Which one of these is considered *best* would, to a certainty, be difficult to determine. However, if we judge from exhibitions, the Partridge variety would certainly be conceded the favorite one,—as they are generally shown extensively at all the leading shows,—while all the others sparingly. They all combine the good qualities of a desirable fowl: very quiet—a fence three feet high sufficient to keep them within bounds; excellent mothers and fair layers; (some claim they are persistent sitters; such has not been our experience, for, though we find they sit steady, yet are easily broken up if desired to do so.) The chicks of all the Asiatics fledge slowly, and they should, consequently, have plenty of shade during the middle of the midsummer days. It is hinted, from sources worthy of heeding, that the Buff Cochins are the old yellow Shanghai that used to stand by the side of a barrel and easily eat corn from the head. If such is really the case the legs have been much shortened, while the body still retains its "Thanksgiving corporosity." Perhaps one of the main reasons why so few buffs are bred is the extreme difficulty in breeding true color, as there is a great tendency in the plumage to come out too light. A yard of pure-bred buffs, standard in color, are a most handsome sight. While we have but one shade of buff that is admissible, according to the "American Standard of Excellence," in England there are several shades recognized, such as *buff, lemon, cinnamon*, &c.



The illustration presented I believe is made from birds once owned by the editor of the *Fanciers' Journal*, a strain that for excellence and purity has not been exceeded, and all the pure birds now bred may readily be traced as descendants. They are of the buff variety. G. O. B.

Brooklandville, Md.

## Late-Hatched Chickens.

Too little attention is paid each season to the chickens hatched late in the season, nearly every breeder supposing that they will not amount to much, and that the care and attention bestowed on them is at best but poor pay. Such is not the case, if only a little extra care is taken of them so as to get them well along before the cold weather sets in.

Nearly all of the Asiatic breeds will do well if hatched as late as September, as their heavy feathering serves in a great measure to protect them from the cold. One precaution is necessary, and that is to keep them out of the cold autumn rains. Half-fledged chickens are very easily damaged by allowing them to get soaking wet in a cold rain, and are put back very much in their growth, even if they are not killed by roup or catarrh by the exposure.

A noticeable feature in late-hatched Asiatics is that they are generally finer in color and shorter in the legs, and that they are *largely pullets*.

In nine cases out of ten the early-hatched chicks will be largely cockerels, and many of these will be coarse and leggy, while later in the season the reverse will be the case.

Some times the cold weather will check their growth completely, unless a *very* warm house is provided; but even then they will make large chicks if generously fed through the winter, for as soon as the warm days of spring come they will, if in good condition—and they ought to be fat—commence growing rapidly and soon rival the earlier-hatched birds. These late-hatched pullets are often very serviceable, as they usually commence laying in April, when the early ones are all in a clucking mood, and will soon pay for the care that has been taken of them. Of course, it will not pay farmers to take this extra care with common fowls, or those designed for market; but the fancier who can find ready sale for eggs in April and May is sorely tempted to let them go, and if he can make use of eggs laid late in June and July and even August, he can well afford a generous supply of food and a little extra care.

These late-hatched chicks should have all the corn they can eat, as late at night as they can see to eat, and they may even be fed by lamp-light; we have done it more than once—and a meal of soft food at daylight in the morning.

During the daytime, if food is left where they can have free access to it, all the better. Every grain of food taken which is not actually needed for the growth of the fowl produces *fat*, and this accumulation of fat renders them all the more fit for a successful wintering. A chicken that is well fed and well housed is far less liable to disease than one that is half starved and that is left out in the cold and storm.

During the severe cold weather they will not grow any, and many are thereby deceived, thinking such chickens are stunted and will never grow any larger; but such is not the case, for, so soon as the grass starts in the spring they will commence to grow and that very rapidly, and will soon "show their keeping" and make valuable fowls.—*Ed.*

## Horticulture.

## Potomac Fruit-Growers.

AUGUST MEETING.

And again it was on board the Mary Washington; and what with a charming day, a large company on board, and a splendid show of fruits—but we must not enlarge—just imagine the scene!

John Saul had a collection of 55 varieties of Pears, fine samples of Duchess of Oldenburg Apples and brilliant collections of the following flowers: *Gladiolus*, *Lilium Auratum*, do. double Tiger, *Phloxes*, and *Hydrangea paniculata grandiflora*. The Agricultural Bureau had a collection of Pears nearly as large as Mr. Saul's—some 45 varieties; some 30 varieties of new Russian Apples, some 16 varieties of Grapes, grown under glass, (which looked tempting,) and branches of wild apple peortus and pear trees. C. Gillingham had also a large collection of Pears. The best Pear that was matured was Clapp's Favorite, of which several contributed specimens.

Time would fail to speak of the many other collections of Peaches, Apples, Pears, Grapes, &c.

Dr. Snodgrass read a paper on

FRUIT CULTURE IN ITS RELATION TO HEALTH.

Speaking learnedly of the influence of trees upon climate, making a scientific classification of the acids in fruits, he said: "And passing by the health-producing effects of labor, in planting, cultivating, pruning, etc., of the trees, I proceed to consider fruit trees as yielders of medicine and food."

The "Grape Cure" of France and Spain is an established fact. I know that invalids have been restored to health by the use of grapes alone; as they also have been by the use of the other fruits, mainly because of their neutralizing effect upon the alkaline matter wherewith meat eaters sooner or later find their systems clogged, and its elimination by the emunctories impaired if not destroyed.

Some years since I passed the winter in New York city as an attaché of the *Tribune*; and eating such food as the restaurants afforded, I found myself in the early spring instinctively drawn to a lemonade stand, and could not pass until I had swallowed glass after glass of the fluid. "What does this mean?" I asked myself. The answer was ready: "Your stomach craves acids, and you will get renewed health at every draft."

Later in the season, as President of the N. Y. Fruit-Growers' Society, I volunteered a prescription for those seeking health. "Substitute lemonade, strawberries, and the fruits in their season, for salts, sulphur, sassafras tea and the like popular physic, and which to many country people seem indispensable to take every spring to regulate the bowels and purify the blood. Par-take of the fruits without stint, and throw the physic to the dogs."

At one of the autumn meetings a tall and stately farmer from N. J. arose and remarked: "Dr., I want to report upon your prescription. I did throw the physic to the dogs, and took strawberries, blackberries, currants, peaches, &c.,



in their turn, omitting physic for the first time in many years. Your prescription acted like a charm, and at least one old man is thankful for it and will be while life lasts."

Raise fruits, then, and let the people use them not merely as a desert after the stomach has already taken more of salty, greasy flesh (blood-clogging) than it can well digest, but as a part of your regular food, and health will follow the change, and happiness which cannot come without health.

Dr. Brainard—If we could eat more fruit and less flesh we should have less need of the doctors.

Dr. McKim had seven typhoid patients last year, all of whom he treated with fruits, and all but one recovered, and this one had a complication of diseases. The mother of this child felt disposed to criticise my treatment until the child of a neighbor died crying out for fruit, when she thanked me that her child had not died for want of food. Children suffering from summer complaints will find great relief if fruits are furnished them.

Gen. Muzzey held in his arms a plump and healthy infant, and said: "When this child was born she weighed nine pounds, and when she was eleven months old she weighed only eleven pounds, and we thought we should lose her. A good Providence furnished us some peaches, and the eating of those cured her. She ate nine at one sitting.

The best cure for the strikes would be to put the laboring class to raising fruits, and eating them instead of the salty stimulating meats and exciting condiments and beverages.

Washington, D. C.

G. F. NEEDHAM.

#### Information for Fruit-Growers.

*Messrs. Editors American Farmer:*

To begin at the beginning, among the most important steps towards success in fruit culture is a judicious selection of varieties. Nurserymen do not generally know what would suit your location; and, besides, they must get off their stock and attend to their own interest. And those who intend to plant should not expect their recommendations to be always safe. Our Southern friends, who desire to plant, should procure a fruit book. "The Southern Apple and Peach Culturist," for instance, will give all the information necessary for their latitude, including the preservation and marketing of fruits, &c., &c.

Errors in selection are not easily remedied. The tree that is unhealthy, barren, or a shy bearer, is a nuisance,—as it occupies a place that might be filled with a choice and productive sort. The amateur only can afford to test many sorts; and, as a general thing, a few varieties, well-known to succeed in your section, and which make up a succession for summer, fall and winter use, are mainly to be desired. For market apples especially only a few of the very best for each season should be cultivated.

**SUMMER VARIETIES.**—For general use we would say, in the light sandy soils of Maryland and Virginia and further south, the following apples generally prove best: Carolina Red June, Striped June, Early Harvest, Summer Hagloe, Red Astrachan, and Summer Queen.

**FALL VARIETIES.**—Fall Queen, Fall Pippin, Gravenstein, Yellow Bell Flower.

**WINTER VARIETIES.**—Wine Sap, Nansemond Beauty, Limbertwig, Rawles' Genet, Nickajack, Golden Pippin, (Cart House,) Mason's Stranger, and Virginia Greening. For cider—Hughes' Virginia Crab and Smith's Cider, and the Wine-sap is a fine cider apple. The above is about as good a list as we can furnish for Delaware, eastern shore of Maryland, Virginia, and further south, and may differ a little from some we have heretofore made.

For the Piedmont section of Virginia and Maryland, including red, gray, and slaty soils, the following sorts are reliable:

**SUMMER.**—Striped June, Early Harvest, Red Astrachan, Summer Pippin, Summer Queen.

**AUTUMN.**—Fall Pippin, Gravenstein, Rambo, Rhode Island Greening, Smoke House, Porter, and Fall Cheese.

**WINTER.**—Wine Sap, Yellow Bell Flower, (early winter,) Albemarle Pippin, (for rich red soils,) Rawles' Genet, Limbertwig, Pilot, Ben Davis, Grimes' Golden, Abram, Milam, Fallwater, Winter Sweet, Paradise, Winter Cheese; and for early winter, American Golden Russet—to which we may add, for the stiff limestone soils of the Valley of Virginia, and northern parts of Maryland and Pennsylvania, Baldwin, Large Yellow Bough, Beauty of the West, Dominic, Hubbardston Nonesuch, and Buckingham.

The above lists include as many or more varieties than most orchards should contain; and we think the *Winesap* should occupy at least one-fourth, or even one-half, of every orchard in any of the sections we have named. None but the best adapted and most select sorts should find a place in our gardens or orchards. The valuable space to be used should only be occupied by the very best, and should receive special care and attention.

**LOCATION.**—As to location, the aspect of many farms preclude the use of the best exposures, and planting must be done with reference to convenience and eligibility. Almost any exposure will answer in Virginia, unless subject to injury from early frosts. In that case the highest hills, with northern exposure, are safest, especially for the peach and cherry. Low, sandy lands are generally protected by their vicinity to large sheets of water.

In no case should fruit-trees be set in soils saturated with water. "Wet feet" is fatal to health and growth. As it is not generally in the power of the farmer to select the best soil and position for each genus of fruit, he must do the best he can under the circumstances. We think the best site for an apple orchard in the southern and middle portions of our country are rich northern slopes, up to the tops of hills if the soil is good.

J. FITZ.

Keswick Depot, Albemarle Co., Va.

THE POTOMAC FRUIT-GROWERS ASSOCIATION will hold its September meeting on Tuesday, 4th, on board the steamer Mary Washington. Dr. S. A. H. McKim will give a paper on "Fruits as Medicines."

## The Grape and Wine Question.

Messrs. Editors American Farmer :

In your May No. I notice an article with this heading, by Mr. Louis Ott, who says that his "views on that subject are based upon a thorough knowledge of it, and a life-long experience," and who expressed these views somewhat authoritatively. Now, with all due deference to him, I do not believe in authorities; I may also say that I have a "life-long experience," but do not consider myself an authority by any means, nor do I take and adopt the views of *any one, unless they are supported by good reasoning and sound logic.* This I fail to detect in Mr. Ott's articles. Simply stating a thing in a dictatorial manner is not arguing it, and will fail to convince the reader; for in our thinking age we do not swallow anything as law and gospel, simply because a certain Mr. So-and-so states his conviction that it is so. We want *reasons* for its being so; and I fail to find a single one either in Mr. Ott's condemnation of gallizing, or of new varieties. I advocate both to a certain extent, and will give my reasons for doing so in as concise a manner as I can, hoping that Mr. Ott and Gen. Giddings will also favor us with theirs, which they have so far omitted to do.

Let us look at gallizing first. I take it for granted that our aim in wine-making is *perfection*, as near as we can attain it, and that now and then we meet with wine which is *perfect*. We will take it for granted (and here I am yielding a point to my opponents,) that this is the product of an unexceptionally good season, and of a perfect grape, in the very best location, without any addition. We analyze the must of such grapes, and what do we find? We find that it consists of the following:

Sugar.....	240 lbs.
Free Acids.....	6 "
Water.....	754 "
Total.....	1,000 "

Besides, flavoring matter or aroma, tannin, gummy or mucous substances, coloring matter, &c., all in the right proportions. This is what we call a *normal must*; and if our grapes would produce such a must in all seasons, and all varieties, we would be foolish to manipulate them still further, for it is a safe maxim to leave *well enough alone*.

But the next season is an unfavorable one; the grapes do not ripen so well, or our location is not quite so good, or we have an imperfect variety. We analyze the must, and find the following result:

Sugar.....	150 lbs.
Acids.....	9 "
Water.....	841 "
Total.....	1,000 "

What will be the result of such a must, made into wine in its natural state? It will be excessively sour, flat and deficient in alcohol,—consequently unhealthy, and repugnant to the taste. How can we remedy this, as no one will drink or buy such an imperfect and unwholesome wine? We, who gallize rationally, calculate thus: "If 90 gallons of must contain 9 lbs. acids and 150 lbs. of sugar, instead of (as in the normal must)

containing 6 lbs. acids and 240 lbs. sugar, we add 450 lbs. of water to dilute the acid, and 130 lbs. of sugar to bring the whole mixture to the standard of the normal must, which will make just as good wine as the season before, with the single exception that it will not have as delicate and exquisite an aroma as the product of the best seasons. Otherwise, it is just as healthy, just as palatable and pleasant; for we add nothing which the grape does not already contain, and which would be in it in its proper proportions, were the season a perfect one. Can there be anything reprehensible in thus correcting the deficiencies of nature, and making a pleasant and wholesome beverage out of an otherwise unhealthy and repugnant one? I think we deserve the thanks and the custom of the community for thus manipulating it, instead of calumny and derision. But in applying the method to American varieties, we find a still greater difficulty in their excess of aroma, and also the excess of tannin in many, all of which are also diluted and toned down by proper gallizing; for the same aroma cannot be so strong and repugnant diluted in 150 galls. than it would be concentrated in 100. Therefore we have in one respect a much greater necessity for it here than in Europe. And right here let me tell Mr. Ott that his famous Catawba, one of the only three varieties he thinks worth cultivating, and fit to make wine of, is very deficient as a wine grape,—as even in the very best seasons it contains an excess of acids, but especially of tannin and flavor. I maintain, and stand ready to prove it, that a properly-gallized Catawba is *always* better than the pure juice, even in the very best seasons. The Nortons come nearer to being a *perfect* grape for *red wine*, although the Cynthiana far excels it in delicacy of flavor and spiciness. As to the Clinton, it contains a great excess of acids, and too much of that wild frost grape flavor, and is therefore also vastly improved by gallizing. Thus it is with nearly every variety of American grapes, especially the older ones. We have as yet no *perfect* American grape; although the Cynthiana, among the red wines, approaches very near to it, and we have made great progress towards a perfect *white* wine grape in the Elvira. And here we come to the second point I take issue on with Mr. Ott. All our efforts should tend to the object to *grow a perfect grape* as near perfection as we can get them, and especially should the sticklers for pure juice wine try to obtain it; for they certainly need it much more than we, who seek to remedy nature's defects. But how are we to get them unless we raise and try new varieties. Mr. Ott's condemnation of all Northern and Western varieties, *before testing them*, certainly smacks strongly of the same spirit which in times of old said, "What good can come from Bethlehem?" Yet the light which has shewn for nearly 1,900 years emanated from there, and is shedding its mild beams over the whole world now. I, for my part, will as gladly welcome the *perfect* grape if it should originate in Virginia as if it came from here, and am one of those who would "try all things, and hold fast that which is good." The Elvira, from what I hear, is already winning golden opinions near Baltimore, though it came from the West; and I saw many



varieties there last fall, which were sent from the West and East, apparently doing well.

I also confess that I would rather have large, perfect, well-developed vines, bunches and berries, than the ugly little, dwarfish, un conspicuous vines, small bunches, and shrivelled up berries. Mr. Ott likes to see, I believe, that well-developed, well-ripened berries will make the best wine, and does not expect to obtain it from imperfect fruit. I think we may as well expect the richest milk and cream from a starved cow, as we may expect perfect must from imperfect grapes.

One word more to define my position closely as to galling. I approve of it *only as a means of improving imperfect must*,—not as a means of increasing the quantity merely at the cost of quality. The latter practice I condemn as much as anyone can; I call those who follow it *gallonizers* instead of gallizers, and think they have done nearly as much to bring American wines into discredit as the Simon Pure Naturalists, with their foxy, sour and astringent wines. There is a medium course in this, as in all things, and it takes a great deal of experimenting and close observation to find the true course, as the product is a different one every season. But with the judicious use of Olchale's Saccharometer and Twitchell's Acidimeter, the observant vintner will soon become so proficient as to know almost, when he tastes his grapes, how far he ought to go to obtain the best result from each variety.

It is certainly a good idea to organize a grape-growers' association for the purposes for which Mr. Ott mentions, and when also each side (the naturalists and gallizers) can meet on neutral ground and discuss their views. Wishing it success from the bottom of my heart, and hoping to profit from its discussions, I remain

Yours sincerely, GEORGE HUSMANN.

Sedalia, Mo., August 13, 1877.

### Floriculture, &c.—September, 1877.

By W. D. BRACKENRIDGE, Florist and Nurseryman, Govanstown, Baltimore County, Md.

#### Greenhouse.

Much useful time may this month be spent in performing certain kinds of work in the Greenhouse; as painting, glazing, repairing side-shelves and stages. A general overhaul ought also to be made of all hot-air flues and apparatus for heating by water. When this work is longer delayed much filth and confusion will in all probability be the result, for should cold wet weather set in it may be found necessary to move some of the more tender plants under glass: hence the propriety of having everything in order to receive them.

Where cut flowers are much in demand during the winter, preparations should now be made to meet this, by sowing seeds of Sweet Alyssum, Mignonette, Chinise Primrose, purple and white Gilly-Flowers, as well as some Cinerarias and Minulus, and when no regular Rose-house is kept we would advise the adoption of one or two dozen free-blooming Rose bushes, of the Tea, Bengal and Bourbon kinds. If these have been grown in pots during the summer they

should now receive a shift into larger pots, stimulating them into growth by watering once or twice every week with liquid manure, of cow or sheep droppings; but if good strong bushes can be had from the open ground, lift them at once carefully, and pot them in good mellow, turfy loam and rotted manure; keeping them close together, and shading for a week or ten days, until fresh roots are formed. Such plants by having a few of the weak branches cut off, and the main ones shortened back, will, if placed in the greenhouse in October, and otherwise properly cared for, produce a profusion of bloom about Christmas time. We have tried this often, and found it to work well. The same may be said of the double and single Tuberose grown in the open ground. Such of these as have been late in pushing their flower stems, if taken up before frost, will, if planted in boxes or a bed in the greenhouse, expand their fragrant flowers during the winter. There is another great help-along in the winter for the cut-flower interest in private establishments, and one by-the-by not to be despised, viz:

By lifting from the open ground, and placing in pots or boxes, about the time when the leaves begin to drop, plants of Persian Lilacs, (white and purple), Spiraea Cratægifolia and S. Reevesii, Deutzia gracilis and D. Crenata single and double white-flowered, Viburnum plicatum and Rubus spectabilis—this last we have seen producing a profusion of pure double white flowers, which when the plant is well grown are nearly as large as that of a Lamarque Rose; still keeping in view the supply of winter bloom, we would now pot Hyacinths, Duc Van Thol Tulips, Crocus and Jonquil Narcissus, plunging the pots in a cool damp place until such times as the bulbs are well supplied with rootlets, after which they can be moved into heat. Hyacinths and Tulips should never be placed in heat until the pots are well filled with roots.

A number of Calla Lily ought now to be fresh potted, and started into growth, while Stevias, Eupatorium and Chrysanthemums should receive their last shift, leaving the branches unpinched, that they may run into flowers. Poinsettias and Bouvardias growing in beds will do better if taken up towards the end of the month, keeping them in a close shady place for a few days after lifting and potting. All bulbous and tuberous rooted plants that have ceased blooming should, so soon as the foliage begins to decay, receive a diminished supply of water, and when vegetation entirely ceases be withheld altogether, and the roots placed away in a moderately dry place, free from frosts. Attention ought to be paid to lifting pots with plants plunged in the open ground, so as to check the roots from passing through the bottom of the pot into the ground, for if permitted to do so such plants will suffer on being moved into the house; and certainly the near approach of a long winter is not the time to repair any damage thus done by neglect. Roses of the Bengal, Bourbon, Tea and Noisette kinds will propagate readily from cuttings, now, if taken from firm lateral branches say two to three inches long, planting these firmly in sand around the edge of a flower-pot, or in a shallow box filled with the same material, observing to

keep them shaded until roots are formed; they can then be wintered over in a cold frame, and planted out in spring. This simple method is suitable for the amateur. For the mercantile man, various other ways are practiced for the multiplication of the "Queen of the garden." As for Geraniums, almost any lady of the present day knows how to multiply them from cuttings; but the greatest drawback is that after having effected the first move in the formation of a plant, they often kill the "dear little pet" by over-much care, before reaching its day of maturity; while on the other hand we have known ladies who appeared to possess a magical influence in having every plant that they touched to grow with them. There is nothing more enchanting than to stand aloof and view a lady in her flower garden, protected by a sun bonnet, with trowel in hand eradicating the pests of weeds, or planting out in their respective places her favorites; then with a graceful turn, and nimble hand, trim a vine to a stake, that it also may assume an elegant position. We will not say we adore such people, but we will venture this much—we esteem them.

#### LAWN AND PLEASURE GROUNDS.

If the weather proves humid we would advise any one about to plant Evergreens to get about the work towards the end of the month. This early fall planting gives the tree time to form fresh roots in its new position, before winter sets in. In the performance of this work we will enumerate a few things to be observed: First, never suffer the roots to get dried, and in planting spread all well out; but do not place them deeper under ground than they were before lifting. See that the earth is carefully placed around them; when this is done tread it firmly with the foot; but do not pound it down with a rammer as some writers recommend. If the situation is exposed to heavy winds a few of the more slender ones may require stakes, which can be removed the following spring.

W. D. BRACKENRIDGE.

#### Rambling Notes.

##### *Editors American Farmer:*

The past two months have been unusually severe on flowering plants, and those that have withstood the excessive drouth are well calculated to prove just the varieties needed for us to propagate from for the coming year's planting. I desire in these "rambling notices" to call attention more particularly to a class of plants that we are gradually putting aside, and that is "flowering plants," and allowing our taste to flow into another channel, i. e. that of massing colors of gorgeous foliage with ribbon lines or solitary beds of a single color. This is all right and certainly is to be spoken of as nothing less than a step forward in the right direction; but we should not forget our old friends, especially the "never failing" ones. Contrarywise we should instead of giving them a poor secluded piece of ground to grow in place them in our best beds, giving plenty of the good things of this (their) life to help them show forth their bright array of colors, and scatter their fragrance where it may be enjoyed.

For the September paper we choose

#### GERANIUMS.

the best as bedding plants, and in this locality being always subject to summer drouths, we are enabled year by year to pick out the best, and discard the worthless. We would here say that all varieties do well in spring under glass, but very few of the fancy shades succeed under our burning suns, and what we have to say is confined entirely to those suitable for planting in open ground. I have chosen six varieties of each class—double and single—being usually as many as an amateur cares to invest in.

Of the single varieties: Queen of the West, orange scarlet; Gen. Grant, brilliant scarlet; King of Whites; Master Christine, pink; Perfection, white, pink eye; Pride of Paris, cherry.

Of the double varieties: Madame Lemoine, bright pink; Anna Mondel, (new,) rosy pink; Charles H. Wagner, (new,) cherry-fine; R. C. Roabard, scarlet; Charles Lyell, salmon, and Aline Sisley, white.

These twelve varieties are as good as can be had. We have selected them from over three hundred varieties.

Of the variegated foliage varieties, Mountain of Snow and Lady Plymouth (variegated Rose), are the only two silver-edged kinds worth growing. There are a great many of the Golden Bronze geraniums said to stand the hottest climate; we have discarded all but Marshal McMahon, none of the others doing half as well. We have two fine plants of double geraniums, C. H. Wagner and J. C. Roabard, growing in pots; the first with 22 and the last 28 large trusses; these are from cuttings struck in April. I consider them two of the finest double varieties that have been sent out, both for pot culture and bedding purposes.

There has lately been offered for sale among the profession in England, several remarkable varieties, some of which we imported this spring, most all of which have flowered, and certainly they are far ahead of anything yet offered for sale in this country. The main object to be looked at is to procure varieties that grow dwarf and bloom profusely, and in this case they have succeeded admirably. I will give a description of a few and which I can vouch for: Foremost is Wonderful—the color of this variety is most intense orange scarlet, semi-double, with immense trusses of flowers, on a strong footstalk; the pips are large and of great substance, fine for florists' use; has been awarded six first-class certificates. Evening Star—color, white ground, with large pink eye, fine truss foliage, a light zone, dwarf; Dreadnought—rich peach-blossom color, white eye, rich and fine, excellent bloomer; Deputé Voix—trusses large, flowers dark rose, double, fine for bedding; M. Bouchardat—trusses large, flowers well-formed, pale vermillion, slight shade of yellow; Etienne Marcel—very dark magenta, fine substance; Blanche Gordon—finest pink; Gertrude—magnificent salmon, finest I have seen; Edmond—an improvement on Harry King, scarlet, white eye, fine.

Robbie Burns is the leading new bronze variety that is superseding all others in England. Has a broad dark zone on a clear yellow

foliage, has stood our suns very well this year, and promises to be the best variety we have of that kind. Dr. Masters is the name of the new double regal Pelargonium, on the order of Queen Victoria. Plants I have procured did not bloom this summer; my correspondent says it is the finest of them all. If it beats its fellows of the same class then it indeed will be a valuable acquisition.

Before leaving the geranium, I desire to mention a very singular freak my double varieties have run into—that is of sending up great quantities of seed capsules and forming perfect seeds. This is true of all the varieties save Madame Lemoine, which is so very double that its fructifying powers are not able to carry out their proper functions. I hope to raise a fine lot of seedlings, and if successful will let the readers of the *Farmer* hear about them.

A. BRACKENRIDGE.

Govanston, Balto. Co., Md.

### Grafting the Kilmarnock Willow.

A subscriber asks the proper stock on which to graft the Kilmarnock weeping willow, the right season, etc.

The stock on which the Kilmarnock willow (*Salix caprea*) is grafted, is known among nurserymen as Buridge's willow, (*Salix Buridgeana*) which roots freely by cuttings 10 to 12 inches long, put into the ground early in spring; and should the ground be good these will send up shoots the first summer 4 to 6 feet high, on which the Kilmarnock variety can be budded in August or early September, or they can be grafted in March the following spring. We have propagated it both ways; the buds or grafts should be inserted at a height of 4 to 6 feet, if possible.

W. D. BRACKENRIDGE.

### Brunsvigia.

(*Amaryllis Josephine*.)

The gigantic bulbs of that splendid amaryllis, the *Brunsvigia*, are frequently imported into this country, but are rarely seen in bloom. Many of them are rotted by impatient efforts to force them into growth. These bulbs are dug from their native habitat by European plant-collectors, and are usually of great age. On being received here they should be potted in good strong loam and kept dry until they show signs of growth.

During the summer set the pot in the sunniest, hottest place you have, and bide your time in patience. After growth has commenced, they cannot get too much water. Twice a day they should be well saturated. A fine specimen of this variety is now coming into bloom in the collection of Mr. Ernest Hoen, who has one of the finest collections of *Amaryllis* in this country. We hope it will be in good condition for the coming show of the Maryland Horticultural Society. About twenty-five to thirty buds are now shining on the spike.

W. F. M.

### The Maryland Agricultural College.

#### Stockholders' Meeting.

The special meeting was held on the 9th ultimo, in accordance with the published call. Hon. A. B. Davis, of Montgomery, was made chairman. The call for the meeting was read, and an examination of proxies showed that about 4,000 shares of stock were represented. This was two-thirds of the largest vote ever polled, and a majority, it is believed, of the total amount subscribed.

The chairman stated the objects of the meeting. He said he joined in the call because, first, at the annual meeting in April there was a failure—due probably to an inadvertence on his own part—to comply with the law which requires the vacation of the places of trustees before new ones can be elected. This meeting would give an opportunity to repair that error. Second, because Mr. Sands' statement as to the condition of the college had been fully sustained by the report in another agricultural journal of the State, whose editor showed what was the prevailing occupation and bent of the institution as now conducted; that at the Commencement even, the decorations were warlike, with none of the emblems of agriculture at all. Again, an instance of the unfortunate influences at work there had just come under his own notice. One of his neighbors, a respectable and substantial but hard-working farmer, desiring that his son should receive a better education than he had himself, that he might be the better fitted for his intended vocation as a farmer, sent him to the college. The son had lately returned home, but his taste for farm work had disappeared. He was full of military ardor, and anxious to obtain a cadetship at West Point, for which he had made application to the President of the United States. On his way to the station this morning, added Mr. Davis, he met this young man's father driving his own team. He concluded by saying that if the college was to be of any utility to our young men who are to embrace farm life, present methods there must be changed, and he regretted the board had shown no disposition to change them as requested by the stockholders.

Mr. Wm. B. Sands said, when he was elected to the board it was with the expectation that radical changes were to be made in the college, claiming that every one present at the April meeting would concur that the expectation was justified by the statements then made on behalf of the board. It was not his wish to be conspicuous in offering new plans or amendments of old ones; and it was only because there was not a single thing done or a single word said in the trustees' meeting towards carrying out the wishes of the stockholders, that he offered any suggestions. Two sentences might be excepted in the report of the president, in the first of which he demurs to the assumption that "instruction in practical and experimental agriculture" had not been the leading feature in his administration; yet, in the other, he inconsistently makes his nomination of a farm manager,

ordered three months before, the carrying out of Mr. McHenry's resolution.

He said it was no answer to criticism on the management of the college to point to promises made in the president's report. Promises identical in effect had been made two years before; and after two years of administration, under those assurances, there was nothing, not a sign, to show that agricultural instruction was the fundamental purpose of the institution. That it was easier to make promises than to have them given credence was shown by the response of the farmers of the State. Last year five students of practical agriculture and one in scientific; the year previous but seven representatives from the agricultural community of Maryland attended.

Referring to the published catalogue, bearing the names of 81 pupils, he said these were all who "registered," and some may never have been there at all. He knew of one whose name was down who was there only twenty-four hours, and who left because of a flagrant breach of discipline, of which he was the victim, notwithstanding the vaunted military government. Other instances of its insufficiency had been communicated to him.

Mr. S. continued that he had gone into the board with no objections to and no prejudices against any of the officers or faculty. He had never met but one, and him but once. From conversations with the president on the day of the election, he was led to believe that gentleman held views as to the future of the college, unembarrassed by debt, which would in the main agree with his own, or at least not conflict with them. He supposed he misunderstood Captain Parker, or took too much for granted. His visit to the college, where he had not been for several years, surprised him—so far was it behind what it was. Even eighteen years ago, when it was hardly fairly afloat, and even then crippled by debt, it looked far more an agricultural school than it does now. He concluded the only way to remodel the college was to change the control. The time had come when it was essential to carry out the original purposes of the college. It would not even suffice to merely please the stockholders. The agriculturists of the State demanded that it should accomplish something for their benefit, and this demand must be heard and complied with.

The chairman of the meeting announced that he had received a message from the Governor of the State that he would like to see him. Mr. J. Howard McHenry was called to the chair, but a recess was had until the return of Mr. Davis, who reported that the Governor had requested him to say that he considered the notice for the present meeting was insufficient, that he protested against it, believing an unfair advantage was sought to be gained against the present administration of the college, and that if any action was taken he would refer to the subject in appropriate terms in his message to the Legislature.

Inquiry developed the fact that the notice was published, in legal form, in the *Evening Bulletin* of July 10th and 24th, and in the *American Farmer* of August 1st.

The Governor's interference with the meeting created considerable discussion as to what was proper to be done. There seemed little doubt as to the legality and sufficiency of the call, but all present agreed that it was best to give no ground for any charge of hasty action, far less of any disposition to gain anything by the absence or ignorance of any one concerned.

A letter from Captain Parker was received and read. It protested against the meeting, he having received no notice, and not having had time to collect his proxies.

Mr. Geo. H. Calvert, Jr., animadverted upon the practice which had of late prevailed of officers and professors of the college, whose places sometimes depended upon the result, taking part in the stockholders' meetings, collecting and voting proxies, &c.; a practice which certainly deserved condemnation as an indelicacy if not an impropriety. The stockholders have no concern with the *personnel* of the college administration; they elect their trustees, and those trustees should be looked to for the execution of their wishes. Far less should employes of the college have any part in securing the election of trustees, who are charged with defining the duties, fixing the tenure, salary, &c., of those employes. Mr. Calvert then submitted the following:

*Whereas*, It has been alleged by the Governor of the State and the president of the college that a sufficient notice has not been given for a meeting, called for this day, of the stockholders of the Maryland Agricultural College, and, furthermore, that an unfair advantage is sought to be gained against the present administration of the college,—

*Resolved*, That this meeting do now adjourn until the 11th day of September, at the hour of 10½ A. M., at Guy's Hotel, in the city of Baltimore, and that a legal call for the adjourned meeting be published, signed by all the persons present at this meeting.

Before a vote was taken, it was suggested that it might be well to submit the preamble to the Governor to see whether his position was correctly stated. The chairman did this, and was informed that it was. The preamble and resolution were then unanimously adopted, the legal call also being signed, which is published in our advertising supplement.

#### Letter from a late Trustee.

Messrs. Editors *American Farmer*:

As I have been asked, since the called meeting of the stockholders of the Agricultural College on the 9th instant, by a gentleman (who gave me his proxy some some years ago, and which I still hold) as to my views, I think some attention is due him and others, who have reposed in me a similar confidence. I will endeavor to be as brief as possible, but to explain fully it is necessary to go back several years. I was approached in 1875 by a gentleman, who was then and is now in the board, and urged to attend the annual stockholders' meeting. I replied that I did not desire to do so, and would not take any part unless I saw I could benefit the College by so doing. Afterwards so many and such strong assurances were given, that those whom I was asked to sup-



port would, if re-elected, vote for the best interest of the College, regardless of individuals, that I was induced to change my mind and attend that meeting. It is not necessary to mention the result, which is generally known. After the election I examined very carefully the books at the College, and devoted considerable time to posting myself as to its condition. This examination removed all doubts in my mind as to the necessity for making many changes. To my surprise two of the gentlemen (whom I had been induced to vote for, on account of the assurances given, and who could not have been elected without my vote,) opposed these changes, wishing to continue the administration which, under their trusteeship, had made in less than two years the debt of \$13,000, of which the public have heard so much. Whilst they objected to everything, they did not propose anything to relieve the College of its pecuniary or other embarrassments which they as trustees were in a great measure responsible for. I might also mention the fact that four of the present trustees, on the part of the stockholders, were in the board when this debt was created.

Recently much has been said about the payment of this debt. We find in the *Baltimore Sun* of August 10th, "The friends of the Board of Trustees say in two years a debt of \$13,000 has been paid and the institution placed on a prosperous basis." Their friends do not mention that a majority of these same trustees created this debt in less than two years, and that they have not taken a single step towards making it an Agricultural College.

It is needless for me to state what was done, notwithstanding the opposition of some of the present trustees, for the proceedings are given in June number of the *Farmer* for 1875. I desire only to call your attention to a part of those proceedings, as contained in that number of *Farmer*, as showing the correctness of a statement made by me at the stockholders' meeting last April. "A plan for extinguishing the debt of the corporation was agreed upon, it consisting in setting apart, as a sinking fund, for such length of time as may be necessary, a sum equal to about one-half of the aggregate appropriation received annually from the State and the United States; the College, in the meantime, to be conducted under an economical administration by the faculty, reduced in numbers, as stated." The records will show that this was done upon my motion. The faculty were elected at a subsequent meeting in July. This shows how the debt was provided for.

Perhaps it is also necessary, for others to fully understand me, to state what part I took in the election of president, etc. I supported Captain Parker as professor of mathematics, because his testimonials satisfied me he was competent. I supported him as president, because I thought he had more executive ability than the gentlemen mentioned for the other professorships. At that time I felt also satisfied he would endeavor to make it an Agricultural College in fact as well as in name. His conversations convinced me of this. His letter, addressed to Hon. James T. Earle, April 8th, 1875, contains the following: "All this time I never doubted that Agriculture

was a specialty, and the leading feature of the College. I have always thought it should be." I was further assured by his letter of acceptance, which the board had published and distributed as embodying their views.

Were not these assurances (received from the president and trustees) enough to convince any one? Have the expectations created by such fair promises been realized? Have the terms of the charter been complied with? Is the College to-day what its founders intended it should be? It is stated in the letter of acceptance that "Agriculture is the principal department and the specialty of the College." Although I should like to be able to do so, I cannot say this is the case. The mathematical seems to be the "principal department," as the last Register provides for four professors in that department. In the letter of acceptance it was proposed to have a professor of mathematics and an assistant in mechanics. Nothing to my knowledge has been done to comply with the 6th section of the Act of 1856, chapter 98, (Experiments on Crops, Soils, &c.) nor was a report made to the Legislature, as provided for in the 7th section of the same Act, as to the condition of said College, and the results of experiments, etc. I frankly stated to some of the trustees before the April meeting of the stockholders I was not satisfied, and could not continue to give them my support. This explains why I took issue with them at the April meeting; also why the proxies, which had been collected by some of them, were at that time voted against me. I am free to say, however, I cannot explain why one of them should approach me after the election and urge me to take his place in the board. I stated that I did not desire to be in the board, and if the trustees that had been elected would endeavor to comply with the terms of the charter and intention of its founders, they would receive my support as a stockholder, otherwise I could not give it to them.

From what appears in the May issue of the *American Farmer*, the success of the administration ticket (as it was termed) was secured by promises made to change their programme. Those thus induced to vote for that ticket appear not to have been fully satisfied by the promises made; for one of their number offered a resolution of instruction, which was adopted without opposition. Now, it seems that no disposition was manifested by the majority of the board thus elected to carry out in good faith the promises made, or pay any attention to the resolution adopted by the stockholders. This, I believe, explains the call for a special meeting of stockholders for the 9th of August. I did not sign this call, but will state to the stockholders whose proxies I represented that I was fully confirmed in my views, as expressed at the April meeting, viz:—that a change of trustees was desirable for the best interests of the College. In fact, the remarks made by Messrs. Davis and Sands were so convincing, that I do not think any stockholder could have doubted the necessity for a change. Personally, I am friendly to every member of the present board; but as my views, as to the purposes of the College, do not accord with theirs, I could not vote to sustain them.

In conclusion, I wish to call attention to the following paragraph in the Report of the Presi-

dent of the College, published June 6th, 1877: "At the last meeting of the stockholders, an attempt was made to contrast the salaries of the chairs of mathematics and agriculture. Although I failed to see the point of the argument, I am reminded to call attention to the fact that the chair of mathematics has been vacant since last June." I am glad my attention is called to this matter, that I may fully explain the statement made by me at the stock meeting. Capt. Parker (as shown by the record of the board meeting and his letter of acceptance) was elected Professor of Mathematics and President, and was given an assistant. In the Register of 1875-'76, page 39, it is stated, "The trustees having deemed it expedient to reorganize the faculty and reconstruct the course of study, so as to adapt the College more fully to the present wants and requirements of the State, there will be henceforth—"

- (1) A chair of civil engineering and astronomy;
- (2) A chair of English literature, mental and moral philosophy and history;
- (3) A chair of mathematics;
- (4) A chair of physics and applied mathematics;
- (5) A chair of agriculture, architecture and drawing;
- (6) A chair of chemistry and natural history;
- (7) A chair of ancient and modern languages.

I never thought that such a change was adapting the College more fully to the present wants of the State, nor did it receive my approval. My recollection of the meeting of trustees is that President Parker had his Register drawn up, and at his request it was submitted to a committee of three, who examined it hurriedly during the board meeting, and thus I suppose it received a sort of *quasi* endorsement. I know I had been asked to vote for an ex-United States and Confederate States naval officer as professor of mathematics, which I declined to do on the ground that there were already enough ex-army and navy men in the faculty, and a sufficient number of professors to teach mathematics. I thought, therefore, the whole matter had been dropped, when six votes could not be secured for the gentleman for whom the place was carved out. It now seems I was mistaken, and the intention was, as shown by Register of 1877, to have a professor of civil engineering and astronomy, professor of physics and applied mathematics, professor of mathematics, and an assistant professor of mathematics and commandant of cadets—four instead of three professors of mathematics! I find in the catalogue of St. John's College for 1874-'75, they have, with 121 students, a professor of mathematics and lecturer on mathematics and astronomy, and a tutor in Latin, mathematics and English. To adapt the Agricultural College "more fully to the present wants of the State," with 81 students, it requires four to teach mathematics.

In President Parker's letter of acceptance, agriculture is the first chair. Under this reorganization, as made by him in the Register of 1875-'76, it is in the fifth rank. In examining this Register, we find a good deal of space devoted under the following heads: "Military instruction;" "officer in charge;" "officer of the day;" "orderlies of rooms;" "formations;" "section

leaders;" "section rooms;" "fire brigade;" but very little mention made of agriculture. It seems to be an Agricultural College with the agriculture left out.

CHAS. B. CALVERT.

Prince George's Co., Md., August, 1877.

#### A Defence of the Present Management.

In the Baltimore *Sun* of August 20 appeared an advertisement without signature, arranged so as to seem to come from several trustees of the agricultural college, but emanating probably from some of its officers. It professed to compare the system which now prevails there with the policy Mr. Sands tried to have adopted to comply with the instructions of the stockholders to make "instruction in experimental and practical agriculture the leading feature in the educational system."

We give some extracts from this production, with some comments:

"By the present policy students from other States bring in an average of \$8,000 per year."

Students from other States is eupheny for boys being drilled for the West Point and Naval school examinations. At the stock meeting in April it was stated that there were ten or eleven of these pupils in attendance. President Parker, in his report of June 6, says there were then nine. Assuming this below the average and adding 50 or 60 per cent., let us call it *fifteen*. Then how much do they profit the college pecuniarily?

15 pupils at \$45 per month will be per month	
\$675 or per school year of 9 months.....	\$6,075
From which deduct \$10 a head per month, being the president's commission on this class of pupils he draws thither. This would be \$1,350, but by contract his fees must not exceed.....	\$1,300
Deduct also cost of board, etc., as to other pupils, \$200 each per session.....	\$3,000
The average attendance is from 45 to 50 pupils for whom there are 7 teachers. Then at least two of these are made necessary for the 15 "specials." Putting their salaries at \$800 and \$600, it is.....	\$1,400
And their board, &c., (the same as the students).....	400
	\$6,000

Leaving a *net gain* to the college for one session from 15 special students of..... \$75

It should be understood that these are not permanent pupils. They come and go irregularly. An average of fifteen present, if they change every three months, would make 45 in the course of the school year. The session before last, Prof. Worthington said in his public statement, there were 37 of these boys. During the same time there were nineteen counties of the State which sent not a student!

"Those who signed the call for a special meeting wish to shut out these students. [Correct; they are out of place; no gain pecuniarily to the college, and in the way of its doing its appropriate work.] Go back to another trial, [of what?] receive only such students as will declare their intention of becoming farmers, even if only five apply during the year, which would run the college again into debt, use the appropriation of the State for paying salaries, and leave no money for improving the farm or college."

An effective corps of teachers of ability (including competent instructors in practical horticultural



ture and veterinary art) can be provided at a cost of little more than the amount of the U. S. appropriation, leaving untouched for contingencies, the carrying on of experiments, &c., nearly the whole of the State's donation.

No one proposed to apply a test oath to pupils. A school of medicine or theology does not exact a pledge that all attending will become physicians or clergymen. Each offers certain courses of instruction which may be availed of or let alone. If this institution will give the kind of education its charter requires, and there is no demand for it, then it ought to shut up. There is no virtue in changing it to something else not contemplated and not needed. A bank incorporated to receive deposits and make discounts, if business is dull, does not go to making shoes, but into liquidation. If the present trustees and faculty cannot so order an agricultural school that it will perform its lawful functions in a manner to win confidence and attract custom, no merit attaches to their setting up a shop for general education. The State contributes handsomely to the maintenance of other institutions—St. John's, Washington, Western Maryland Colleges, Charlotte Hall and Brookeville Academies, and perhaps others, that afford opportunities for that education, and which were doing so before this one was established for a different and specific end. Still less do the "special" features deserve any commendation.

"The policy of Mr. Sands is to upset this charter. [The power to unmake laws is not vested in him:] to make agriculture a specialty; [Certainly; "the leading feature," says the law as well as stockholders. If otherwise, wherefore its "title?"] to cut out the chairs of civil engineering, "physics and languages."

Only of languages. To assign so much of civil engineering as is desirable to the teacher of mathematics, and physics to the chemist.

"Receiving only those who desire to be farmers, "it requires all students to work on the farm."

The institution being intended by its founders and required by the law (with certain privileges of expansion) to train young men who expect to be farmers, the course of instruction should be adapted to their wants; and exercise in the manual operations of the farm being necessary for illustration and for acquiring facility and skill, there should be no privileged classes exempt from it. Labor should be honored by its association with intelligence and education.

"The present trustees, Mr. Sands alone excepted, think the time has not yet come for such a specialty."

They have retrogressed! Two years back they declared, "agriculture is to be the principal department and *specialty* of the college. (Their own italics.) That department was then first in order. In one year it was reduced to fifth in rank, and was a compound of agriculture, architecture and drawing! So it remains in the scheme for next session.

"Maryland farmers desire their sons to have a general education, so that if they should fail as farmers they may be prepared for something else."

The author of that sentence was ill-advised as to the desires of Maryland farmers. They wish

their sons who are to follow them in their own calling to have such a helpful education that they may *succeed* as farmers. This explains why they do not go to Bladensburg.

"They do desire to bring the college up to the requirements of the charter, but until the people are ready for such an education no college can succeed on that basis alone."

Here, then, after the talk about others "violating the conditions" and "upsetting" the charter, is a candid admission that the requirements of the charter are not now met. How is it known the people are not ready for the exact carrying out of the law governing the institution? When was the trial made? Is it not time to make it?

"They claim to have made many improvements upon the old condition of the college: "out of debt, with a good list of students, &c."

This reads as though the present board was a new one. On the contrary, it is substantially the same as for four years at least. Four of the seven stockholders' trustees (virtually the board) have not been changed. They having during that time made the majority, they have marked its policy. They were the majority when Mr. Davis retired, after opposing the inefficient administration preceding the present; when Mr. McHenry resigned, because he thought it was the business of an agricultural school to teach agriculture and the sciences pertaining to it, and not to train boys for West Point and Annapolis; when Mr. Calvert went into opposition, because to teach mathematics cost \$5,000 a year and agriculture only \$600, and that nothing was done to enlarge the agricultural features; when a later addition to the board found himself a minority of one in endeavoring to carry out the recorded wishes of the stockholders.

It was they who sustained the last administration in its failures and vagaries; and it was some of them at least who sought to retain it, notwithstanding it had created the debt of \$13,000, of which so much has been heard, in less than two years.

We must be permitted to doubt the oft-repeated boast about the debt being extinguished. If necessary we could give satisfactory reasons for doing so. The debt

Never is, but always to be, paid.

Yet, with an income of \$6,000 from the State, \$7,300 from the United States, and "an average of \$8,000 per year" from the special students, paying the most meagre salaries to the teachers, (the president excepted,) it was no miracle to pay that debt in two years, no money being paid for experiments. The same argument would hold if they had converted it into a factory or a hotel. Who will say it has done one iota of good to the State, or the agricultural cause, for the past two years?

"The work must be gradual."

The instructions of the stockholders were "at the earliest possible moment."

"The curriculum, especially in agriculture, is equal to any college in the country."

This statement vies with that other astonishing one in this year's Register, that "its proximity to Washington secures for it an interest and influence co-extensive with the nation."

"The trustees have not had time to perfect their policy as indicated in their annual register before certain stockholders call a meeting and try to upset a management which is the only paying one since the organization of the college."

How many years do they want? The register discloses no policy different from the past. It defends that of the past. There is no change of persons, which oft-times accomplishes more than projected alterations of system. The stereotyped promises of what will be done are there. All the features which deter progress and hinder patronage from farmers are there. The instructions of the stockholders are slighted, and there is no intention expressed in the register or in the advertisement, from which we have liberally quoted, of carrying them out. A policy is set up and is argued to be a very good thing, better than the demands of the stockholders, far better than the requirements of the charter.

But even if the promises made are carried out they will not avail. The suggestions of improvements are crude, the working plans ill-digested.

The present administration does not believe in the practicability of an useful agricultural education, and does not think it is demanded or needed by the farming class. Hence the effort to prove that something different is preferable to carrying the college back to its original aims, and complying with the wishes of the stockholders as lately uttered.

Our space will not permit us to make some extracts from the "Register" of the college. We should like to show to our farmers of the State the kind of experiments made for their benefit: the sort of instruction offered for their sons; the estimates placed upon their wants. In all that we consider vital to an useful school of the sort it is lacking. What is given, or promised, is what is not germane or profitable. In fine, it represents what an agricultural college *should not* be.

Doubtless some of our readers will think the space given this subject exceeds its importance. If it were merely a question as to how a few boys should be taught every year, we should have dismissed the topic long ago.

Its consequence to the farmers of Maryland is far greater. The support of this institution is about all the State does for agriculture, except some small donations to county societies.

The college was meant to be a great deal more than an institution of learning. It was to be an agricultural focus from which light should spread over the State. Its experiments and observations—totally neglected by the present government—were to be of the highest value to our farmers. They were begun indeed before the buildings were occupied. Of late they have failed to be prosecuted at all.

Let the farmers of Maryland apply to the next Legislature for a moderate appropriation to

establish and keep in operation a Fertilizer Control and Experiment Station—an institution which might save tens of thousands of dollars annually to our State. Our lawyer-legislators will reply, and not inapty: "This work ought to be done at your agricultural college. You farmers have shown that with abundant funds at command you have utterly failed to make that institution of the least value to your class or to the State; you have not even maintained it as an agricultural school; you have confessed it is impracticable to carry on such a one and have diverted it to other uses. We, therefore, must vote against any further appropriations to agricultural establishments, whilst the present appropriations are so unwisely expended." Will the response be deserved? And unprofitably.

#### Original Object of its Organization.

Our attention has lately been called to an exceedingly able address to the citizens of Maryland and the contiguous States, made in October, 1854, by a committee of the Maryland State Agricultural Society, of which committee Col. Ramsay McHenry, of Harford, was chairman, on the establishment, in connection with an experimental farm, "of an educational institution to be entitled the 'Agricultural College of Maryland.'"

This address so perfectly expresses the objects had in view by the public-spirited men who were urging forward this enterprise, intended to be so great a boon to our agricultural interests, that the reproduction of some extracts from it will be timely now as showing not only how the institution which was after much patience established has varied from the original intents of its designers, but how the views of its managers have altered as to its functions.

Col. McHenry says in his address (given in full in the *American Farmer* for October, 1854:)

"The board will employ an intelligent and skilful practical farmer, and appoint to professorships of the natural sciences and such other branches of knowledge as have an important bearing, direct or indirect, upon the usefulness of the proprietor of land, as the conductor of agricultural operations, the best qualified persons whose services can be secured."

The committee then announce the following features as, in the estimation of the projectors of the foundation, proper to be embodied in its fundamental ordinances:

"1st. Ample provision for both theoretic and practical instruction of the pupils in those branches of knowledge and art immediately connected with agricultural pursuits in this or the adjoining degrees of latitude to fit the graduate for taking charge of and successfully conducting any and every department of husbandry."

"2d. Restriction of the privilege of matriculation to youths of suitable age (say over fourteen and under twenty-one years,) physical vigor, mental capacity and good moral character, who are already well grounded in at least all the elementary rudiments of what is termed an 'English education.'" \* \* \*

"4th. A course of discipline, \* \* \* \* \* competent to develop *pari passu* the morals, mental and physical powers, to form good citizens as well as skilful farmers." \* \* \* \*

"5th. Such a direction of the resources of the farm as will contribute as much as possible, with subserviency to its primary object of affording to the students practical experience and the opportunity of witnessing important scientific experiments, to the income of the institution."

And further:

"You will at once perceive that the original and main design of our institution is, by a systematic combination of scientific with practical and moral training, thoroughly to educate the rising generation of agriculturists to produce a corps of enlightened, well-disciplined, and eminently practical farmers; their minds stored with all the resources accumulated by science and experience for the prosecution of their art; their perception and skill sharpened by the continuous conjunction, under their observation, and with their participation in the ordinary processes of tillage, and the usual routine of rural economy, with the suggestive commentaries of inductive science, and the light shed upon their future pursuit by the researches and discoveries of all ages and nations. All that relates to the vastly diversified calling of the husbandman, every species of knowledge and dexterity likely to enable the proprietor or manager of an estate to sway, improve, beautify and render profitable the domain, population and brute animals over which he is to provide, is embraced in our comprehensive scheme. \* \* \* \* \*

"Although designed to act directly on its chiefs and leaders, our college will tend obviously to elevate the character and ennoble the condition of that much-neglected division of our population which is numerically so far predominant over all others. Thus, by the comparatively small number of highly-instructed men who will issue from our Seminary, the seeds of improvement and advance will be disseminated far and wide over our hills, plains and coasts."

How these patriotic aspirations have been defeated, a glance at the institution will show.

Alluding to the superior management of public institutions of a similar character in England and Scotland, over those of other countries of Europe, occasioned by the former being operated by voluntary associations of those interested in the welfare of agriculture, Mr. McHenry adds:

"In the one case, the controllers and proprietors consist of those whose efforts and watchfulness are stimulated by their own keen-felt interest. In the other the salaried subordinates of the ruling power, devoid of identity of interest with those they supervise, exhibit that listlessness and tardiness in progress which always marks a bureaucracy. It seems, therefore, the part of

wisdom so to organize our educational institutions, that their guardianship shall be confided to those whose best hopes are involved in their success. On this basis do we propose to rest the destinies of our agricultural college. Any aid which may hereafter be extended to us, by State or municipal authorities, will, of course, be gratefully received, but we do not design to entrust the control of our institution to any except those who necessarily must consider its welfare inseparable from their own."

We wish that our space would permit us to give in full this able, indeed eloquent, document. It is as full of interest to-day as when first uttered. Fuller, indeed, because its perusal compels melancholy testimony to the departure of a noble craft from the track ordained by its builders, perfectly mapped on the chart, and illumined by beacons which gave no uncertain light.

We may in the future reproduce other portions of it in more connected shape, but in anticipation of doing so we refer with gratification to the identity of the general plan it announces to that lately offered in the attempted remodeling of the College, but unhesitatingly rejected as not suited to the times nor to the wants of our agriculturists.

We conclude our extracts with one of present pertinence:

The same methods must be pursued in preparing a youth for agricultural as for any other pursuits. He must undergo a training in which the practical part of his occupation is taught him by actual performance, whilst the laws of nature and the reasons for different processes are expounded to him in full view of illustrations daily before his eyes. It is to this combination of instruction with practice, this special training for a particular pursuit, that modern progress in the useful arts is due. Thus we have mechanics' institutes, where the apprentice has unfolded to him the principles of science bearing on his art, while he is daily acquiring manual skill in the contiguous workshops."

#### Work for the Month—September.

Now or never must the farmer be awake and active for the work of preparation to which this season is dedicated. To do thoroughly what is to be done is the goal which ought to be sought be reached. This, too, at the sacrifice of expanded acreages.

**Wheat Culture.**—The first requisite to success in producing this grain is deep and thorough preparation of the soil. It is only by separating the soil into its finest particles that the influences of the air, the rains and the dews may be fully felt; that all its capacity is developed for yielding up the stores they contain of pabulum for the plants. Deeply reversing and stirring the soil permits superfluous water to escape from the roots. It also admits of more thorough aeration, an essential to the process of

growth. Wheat will not endure wet land, and provision must be made not only for the quick passage of the water from the roots but also from the surface.

Although plowing for wheat should be done as early as possible, and the land harrowed and cross-harrowed to bring it to the highest tilth, yet the seed-bed should have time to become compacted before seeding. To aid in accomplishing this, the use of the roller is very desirable and advantageous, and this is an implement too much neglected in preparing land.

If lime is to be applied, it should not be plowed under. Its gravity causes it to sink, and precaution should be used to keep it as near the surface as possible. No better addition can be made than ashes; they, like barn-yard manure, are nature's complete fertilizer, adapted to every soil and every crop.

A clover ley is probably the best preparation for the wheat crop, the roots containing large quantities of nitrogen. This element, it is almost universally conceded, is indispensable to be applied in some shape for the growth of the cereals in most soils. Ville, the great French chemist, says practice on a large scale has proved the utility of nitrogenous manures, and that of all substances he has tried the nitrates have given the best results when he has operated on a small scale; but at the experimental farm at Vincennes he observed no difference between the employment of nitrates and of ammoniacal salts.

Of course, besides the complement of nitrogenous or ammoniacal matter, every fertilizer must contain, to be thoroughly effective, a due proportion of phosphoric acid. A mixture of good Peruvian guano and fine bone-dust, say 50 to 100 pounds of the former to from 200 to 300 pounds of the latter, is a sufficient application to largely increase in most soils the normal product. The guano gives the stimulus to full growth which enables the plant to become established before the freezing weather; its phosphates are in a condition to be at once available for absorption; and the moisture of the soil during the winter prepares the bones for the action of the air and sunshine in the spring, and makes available then ammonia and the phosphoric acid which goes to mature the grain. The same result is achieved, and more gradually and regularly perhaps, in the use of an ammoniated super-phosphate. Doses of from 200 to 300 pounds per acre should be always profitable investments.

Where undecomposed and rough stable manure, with offal, stalks, straw, &c., is used, it is preferably applied to the surface. The portions not broken down act as a mulch and protect the grain from thawing and freezing.

The distribution of fertilizers by the drill is best secured by the drill. Greater uniformity is secured, less loss is incurred, and the material is placed where it will be most efficacious, within close reach of the grain roots.

The drill for seeding is generally advantageous. Economy in time and labor; the greater regularity in depositing the seed; the saving of the quantity required,—all combine to recommend its use. Another great benefit is the exemption of drilled grain from winter-killing. Mr. Geo. Geddes, a notable farmer of New York, always

runs his drill across the direction of the prevailing winds, so that the drill ridges make a considerable protection, and, as the earth by freezing and thawing crumbles, they are gradually and partially filled.

In this vicinity the quantity of seed is from 5 to 8 pecks,—the poorer the land the more seed generally sown. When sown broadcast 8 pecks is the usual allowance.

Seeding time in this latitude is generally from the 15th of this to the 10th of next month. Earlier sowing than the first-named date renders the plant liable to attacks of the fly; later sowing than the other, to the rust.

As a precaution against smut the seed should be prepared by steeping in a solution of blue vitriol. A quarter pound of this is dissolved in as much water as will moisten a bushel of seed when well stirred in. A brine strong enough to bear an egg is also a good steep. The light seeds, filth, &c., should be skimmed off as they rise to the surface. Some dust the seed when taken out of the steep with quick-lime, which destroys the germs of the fungi.

Of varieties, the old favorites in some sections maintain their ground. In others new kinds are being introduced. Mr. Carter's tables on another page will be found useful as well as interesting.

Several other papers in this issue on various points of wheat culture may be profitably referred to.

**Rye.**—This crop ought to be put in as early as possible. Its uses for giving early pasture to calves and lambs, and for cutting green for stall feeding, make it of value beyond its grain and straw product. Some fertilizer ought to be added to land not in good condition. Bone-dust and ashes, super-phosphates, and, of course, stable manure, are useful. From four to five pecks of seed are usually sown to the acre for grain; and for soiling purposes, two bushels. For the latter sow at once.

**Meadows.**—Timothy requires land in good condition, both as regards mechanical condition and fertility. Well-rotted barn-yard manure, turned under shallow, and a light application of super-phosphate or bone-dust, is a good preparation. When sown alone, half a bushel of seed to the acre is not too much.

**Curing Corn Fodder.**—Fodder sown in drills for fodder, is best cured by cutting and allowing to remain on the ground for two or three days, and then putting up in moderate-sized shocks; or by piling thickly against fences, the sides of a barn or other convenient places.

**Manure Making** should not be overlooked. The wastes of the farm should be husbanded. All organic materials not useful are harmful, and should be composted with the road scrapings, litter and slops from the house, alternate layers of manure from the stables, the pig pens, &c.

**Planting Orchards.**—Make preparations for this where it is to be done by deep plowing and subsoiling. Select land naturally well drained. Order your trees early. See communication on varieties, from Mr. Fitz, in another column.

**Tops and Blades** ought to be saved carefully and put away as soon as cured.



## Bedding Plants for Dry Weather.

The severe drought of the past month has told fearfully on some of the "ribbon beds" which looked all right a month back, and we have been taking notes, for another season's use, of such as are valuable for their resistance to heat and drought. Among the many varieties of *Coleus* there are but few that preserve their beauty when exposed to our summer sun. The following are the best:

*Pluto*—Broad fringed leaves, glossy black, without a hint of any other color, except a tinge of plum color on the young shoots. A scarce variety. It absolutely revels in the heat and improves in the drought.

*Black Prince*—In the style of *Verschaffeldtii*, but of a darker shade, being a rich plum color.

*Cornet*—Deep yellow, edged and blotched with plum color, called by some *Cloth of Gold*. The varieties with red foliage edged with yellow are all unreliable in hot weather. *Golden Gem*, however, sometimes does very well. Of white-leaved plants we find the *Centaureas* very unreliable; they have died out badly this summer. *Artemisia Stellariana* stands it better. For a white edging plant we think *Achyrocline Saundersonii* will be found first-rate if the flower shoots are kept clipped. For dry weather nothing is better than the fleshy-leaved *Talinum patens variegatum*. No amount of drought affects it, and the white variegation is very distinct. It, too, needs to have the flower-stalks kept pinched out when used for ribbon beds. The double scarlet geranium *Sapeur Pompier* has again made good our claim for it as the best scarlet bedding geranium grown. Our plants have been a mass of scarlet all summer, and for bouquet-making they are superb, as the individual flowerets are nearly as large as a carnation. In pink nosegay geraniums for bedding we have one we think will leave *Master Christine* far behind for this purpose. This, however, is to be tested another season before speaking positively of its merits.

*Chestnut Hill.*

W. F. MASSEY.

## Dairy Items.

Those who have no ice, can have sweet milk for the table by dissolving a small portion of carbonate soda when the milk is strained; about one grain per quart.

A little soda stirred in sour cream will prevent its curdling in coffee or tea, besides correcting the acid.

To keep butter firm without ice: stir in the cream, when about to churn, a teaspoonful of carbonate soda and one teaspoonful of powdered alum. They do not affect the taste of the butter.

In putting up butter for winter use, add a little saltpetre to the salt.

For table use, add a little sugar besides.

I know these to be good. Do not give my name, as I have no ambition to appear in print. I get 5 to 10 cents per pound for my butter over the price at the stores, and can't supply the demand.

*Lancaster Co., Va.*

## Verbenas—Raspberries.

*Editors American Farmer:*

This is just the time when some of you, readers would feel great pleasure in looking at a verberna bed which was in flower as early as it is possible to get it, and which is now in good bloom and health, and looks like holding out to the end, in the same way our *Scarlet Geraniums* do.

The writer knows something about heading back plants to obtain wood for propagating other than *Verbenas*; that is not the point for consideration. The question is, do we know what the *Verberna* disease is, the cause, prevention and the cure? If we do not, we cannot lay claim to much progress. If we can have the *Verberna* in perfection for but about twelve weeks in the year, it is just as well to own up to it; but if by any ordinary means we can extend that time say to twenty weeks, why let us know, by all means, the full *modus operandi*.

There is one other subject we would just touch upon. Do many of those having charge of fruit and vegetable gardens for private families ever study the habits of the subjects they have under care? Take for instance the raspberry, usually considered one of the most healthful fruits grown, and perhaps as generally acceptable as any,—a surface rooting plant, throwing up shoots the present season on which it bears fruit the following. Can any treatment be more irrational than to tear a plow or a cultivator between them a half a dozen times in a season, leaving all suckers to grow in the rows until they look like the underbrush in a wood? Of course the Raspberry patch wears out. What else could be expected? Suppose we allow four or at the most five canes to the hill—in addition to those bearing fruit—and treat every other that shows its head above the ground as a weed, cut away the fruiting canes when they have done bearing. There is some difference of opinion respecting the last point. Some prefer leaving the bearing wood till the autumn, thinking they strengthen the root, &c.; but according to our own experience, whatever good may accrue in that direction is more than counterbalanced by the evil of overcrowding the growing canes. Stir the ground shallow at all times; manure in spring or early summer and leave it as a mulch; and in this connection we would remark that for all purposes of mulching for the winter, straw or any other littery stuff free of weed seeds, is equal to, and in most instances superior to, manure for keeping out cold. It is an error to mulch with manure for the winter with the double purpose in view of keeping out frost and manuring the ground at the same time. We do not say that the entire fertilizing quality of the manure is lost, but we do assert that it is a most wasteful practice as any of your readers may prove for themselves by experiment. It is also just as well to bear in mind that those things which are almost hardy stand a much better chance of passing the winter unscathed when they have been kept in a healthy flourishing state, and the wood well exposed the summer previous.

N. F. F.



# The American Farmer.

PUBLISHED ON THE FIRST OF EVERY MONTH

By SAML. SANDS & SON,

At 128 W. Baltimore Street, (sign of the Golden Plow,) Baltimore, Md.

WM. B. SANDS, Proprietor.

SAML. SANDS, { Editors and Publishers.  
WM. B. SANDS, }

D. McNEILL, Agent and Corresponding Editor,  
Montpelier, Richmond County, N. C.

SUBSCRIPTION, \$1.50 a year, in advance. To Clubs of five or more, \$1.00 each. For \$10, eleven copies will be sent.

## ADVERTISING RATES.

	1 Mo.	3 Mo.	6 Mo.	1 Year.
One Square, 10 lines....	\$ 1.50	\$ 4.00	\$ 7.00	\$ 12.00
Quarter Page.....	6.00	15.00	22.50	35.00
Half Page.....	12.00	35.00	40.00	70.00
One Page.....	30.00	45.00	75.00	120.00

Cover Pages subject to special contract.  
Transient Advertisements payable in advance—all others quarterly.

Advertisements should reach us by the 27th of the month, to secure insertion in the succeeding issue.

SEPTEMBER 1, 1877.

## The Pomological Society's Meeting and Exhibition of the Maryland Horticultural Society.

We hope our Maryland fruit-growers will not only not forget the Exhibition to take place in this city on the 11th, 12th, 13th and 14th instants, but that all who can do so will contribute to the general collection of fruits which on that occasion will represent our State in comparison with others.

The spacious Armory of the Fifth Regiment Maryland National Guard, on N. Howard and Biddle streets, with the additional wings added for the accommodation of the two societies, is about ready for the work of the committee on arrangements and decorations. Every preparation will be made for the careful and effective display of the deposits from all parts of the American Continent.

Great activity is being displayed in many of the States for suitable representation of their fruits. We hope our own State will not be backward in showing her capacity for producing all kinds of fruits which grow within her borders.

Our State Society offers liberal prizes for certain collections and specimens of fruits. These

prizes ought to be zealously competed for. But in addition to the collections called for by the schedule, it is proposed to have one of the finest and best fruits of Maryland placed alongside of similar collections from other States. To this display all fruit-growers are invited to contribute.

Any one having fruits worthy of exhibition are invited to forward them to the Secretary, Wm. B. Sands, office *American Farmer*, 128 W. Baltimore street.

## Farmers' Meeting and Pic-nic.

The Baltimore County (Md.) Grange proposes to hold on Tuesday, 18th instant, in Cockey's Woods, near Ashland, on the Northern Central Railway, a public meeting and basket pic-nic. A prominent feature of the occasion will be the public installation of the officers of the grange by the W. Master of the Maryland State Grange, Joseph T. Moore, Esq. A number of prominent and eloquent members of the order of Patrons of Husbandry have accepted invitations to deliver addresses on the objects and principles of the grange. Amongst these are Hon. V. E. Piolet, W. Master State Grange of Pennsylvania; Hon. L. L. Waters, W. Overseer, and Jas. S. Robinson, Esq., W. Lecturer Maryland State Grange; H. O. Devries, Esq., W. Master Howard County Grange and State agent; J. Wilson Magruder, Esq., of Montgomery.

From the indications it would seem that the gathering will probably be one of the largest of its kind ever held in Baltimore county. The farmers of the State, with their families and friends, are given a cordial invitation to be present.

## The Virginia Agricultural College.

The commencement of this institution took place on August 14th. There were sixteen graduates: eight in the Departments of Agriculture, seven in both Departments of Agriculture and Mechanics, and one in that of Mechanics alone.

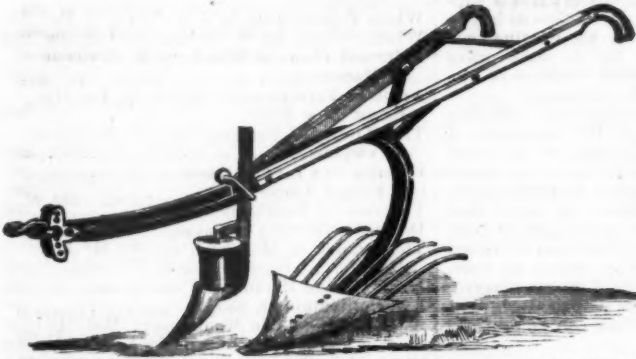
The annual address was delivered by Col. Robert Beverly, of Fauquier, his theme being "Practical Education." It is reported as being eminently appropriate, bristling with practical truths and in suggestions of worth and moment.

Hon. J. R. Tucker delivered the address before the literary societies.

The commencement exercises were largely attended; the Board of Visitors being present, besides a number of other men distinguished as leaders in the agriculture of the State.

The new session began on the 10th.

Rue's Potato-Digger.



it is greatly needed. This one received the highest awards at the Centennial Exhibition last year.

The cut shows a potato-digger, the invention of Geo. W. Rue, of Hamilton, Ohio. It is claimed for it, beyond its capacity for work, to do its work cleaner than can be done by hand, and not cut or bruise the potatoes.—Another advantage claimed is that it will not choke, the rolling fender delivering all the vines and weeds at one side.—Digging potatoes is so laborious an operation that an effective implement to properly perform

### The National Agricultural Congress.

The sixth session of this Association begins on Friday, September 25, and continues three days. The place of meeting, as heretofore noted, is Chicago. The order of proceedings, as published, includes addresses by the president, Hon. W. C. Flagg, upon "Local Self-Government in Agricultural Communities;" by Prof. C. V. Reiley, upon "The Rocky Mountain Locust and the Army Worm;" by Prof. Levi Stockbridge, of the Massachusetts Agricultural College, upon "The Principles of Fertilization;" by Dr. J. T. Tichener, President of the Agricultural and Mechanical College of Alabama, upon "Industrial Education in the Gulf States;" by Prof. B. Warder, upon "Agricultural Education in Bavaria;" and numerous others on topics of importance and interest. Discussions will follow on all the subjects treated in these papers.

### A Comparison.

We cannot refrain from calling attention to the difference between the views expressed in the following:

"The original and main design of our institution is, by a systematic combination of scientific with practical and moral training, thoroughly to educate the rising generation of agriculturists to produce a corps of enlightened, well-disciplined and eminently practical farmers." \* \* \*

"To develop *pari passu* the morals, mental and physical powers, to form good citizens as well as skilful farmers."

And in this:

"Those trustees think \* \* \* that Maryland farmers desire their sons to have a general education, so that if they should fail as farmers they may be prepared for something else."

The first is the clear, incisive expression of a well-conceived and well-understood purpose. The latter is an insufficient apology subverting that purpose without rendering any equivalent. The first is from Col. Rameay McHenry's address to the farmers of Maryland,

on the advantages to arise from our agricultural college. The other is from the defence of its present administration, as given in the *Sun* advertisement.

### The Outlook—The Future Demand for Wheat.

Although the Northwestern States may, and probably will, not turn out such yields of wheat as the Chicago papers have endeavored to figure up, there is nevertheless there, as elsewhere in the country, an abundant crop which will supply 100,000,000 bushels in excess of our home demands for export. The question as to the ability of our foreign customers to take this quantity at paying prices seems to be generally regarded as favorably answered. Russia, our principal rival heretofore in the English markets, is, for some time to come, out of the way. In England, according to the latest reports, the crops promise unsatisfactorily, and the weather is against their being gathered in good condition. In France, another competitor with us in England, the harvests are deficient. The influence of these conditions is being felt already. Wheat is bringing in Liverpool thirty-three per cent. more than it did a year ago.

Hitherto Russia has furnished England with an average of \$50,000,000 a year of wheat, three-fourths of which was exported from her Southern ports, now not accessible. Her northern crops are said to be short, and the withdrawal of large numbers of men from agricultural production must contribute to still further reduce her volume of supply.

France, although she exports some flour, imports wheat; and for the coming year her supplies must come from this side. These additions to the normal demands upon us cannot but prove to be of great, indeed immense, importance to this country.

Last year, the of 80,000,000 bushels of corn imported into England, three-fourths was supplied by the United States. Doubtless as large a quantity will be required for the ensuing one. This demand can scarcely fail to make prices remunerative, and the general business of the country to improve under its influence.

There are so many contingencies affecting commercial movements, and the operations of the laws of supply and demand are so much interfered with by the manipulations at our trade-centres, that any predictions as to future prices seem hazardous; but we cannot but believe that the indications warrant an expectation of good return for the largest crops which can be raised in the country for the next season at least. Whilst stating this as the result of our observation, we do not mean to stimulate to attempts at sowing any greater areas than can be properly managed.

The London *Mark Lane Express* of August 28th, in its weekly review of the British corn trade, says:

"The weather has been very unsettled during the past week, and farmers have been considerably delayed in stacking and threshing wheat, although cutting has been carried on without much interruption. Sunshine is now wanted to harden the grain and check the tendency to sprouting. The thunderstorms in the midland counties referred to last week did a good deal of damage, but it is considered that the yield of wheat on the fen lands will be about an average. In Scotland cereals are making unusually slow progress under the influence of wet weather, but appearances indicate a fair yield of grain, although of inferior quality, while there is also good promise of abundant straw. The agricultural returns show that the area planted with wheat this year is about 3,168,000 acres. This is about 172,500 acres in excess of last year, but about the same quantity less than 1875. It also appears that compared with last year barley and oats have been sown upon a slightly diminished area.

There are two conflicting forces in operation in the trade at the present time, and it is difficult to foresee which may prove the stronger. On one hand, America, Russia and Hungary have been favored with abundant crops, while, on the other, the deficient harvests in France and England, the blockade of Southern Russian ports, and uncertainty of politics, are circumstances which may during the winter months assume a force greater than at present."

A telegram of same date, from London, gives the following as the estimate of French harvest prospects, according to the annual report of Messrs. Barthelmy & Esteime, of Marseilles:

"The prospects of the wheat harvest in two departments are very good, in sixteen good, in two pretty good, in thirty-two poor, and in nine bad. The oat prospect is very good in four departments, good in twenty-seven, pretty good in twenty-eight, poor in twenty-one, and bad in two. The rye prospect is very good in four departments, good in ten, pretty good in fifteen, poor in thirty-two, and very bad in eleven."

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## Baltimore Markets—August 31.

Quotations given below are Wholesale Prices:

<b>Breadstuffs.</b> —Flour Active and firm. Receipts light. We quote Howard Street Super \$3.75@4.50; do. Extra \$3.00@5.75; do. Family \$6.25@6.75; do. choice and fancy trade brands \$7.00@8.00; Western Super \$3@4.50; do. Extra \$4.75@5.50; do. Family \$6.00@7.00; City Mills Super \$4@4.50; do. standard Extra \$3@5.50; do. medium Extra \$5.25@6.50; Rio brands Extra \$7.00; Spring Wheat Flour \$6.75@6.75; do. patent \$8@8.50; Patapsco Family \$5.50; do. Extra \$3.25; Cape Henry Family \$3.25; Chesapeake Extra \$3; Pine \$3.25; Rye Flour \$4@4.25; Corn Meal, City Mills 7 brl. \$3.	
<b>Wheat.</b> —Southern moderately active and firm.—Western firm and active for future deliveries. We quote Southern red, common to good, \$1.10@1.25; do. Fultz, \$1.27@1.40; do. amber, long-berry, \$1.41@1.46; Western steamer, spot, \$1.21; do. No. 2 red, spot, \$1.25; do. No. 2 red, spot, \$1.35; do. September delivery, \$1.21; do. October delivery, \$1.30.	
<b>Corn.</b> —Western dull. Southern more active. We quote Southern White 60 cents; do. yellow 55@59 cents; Western steamer, spot, 51 cents; do. mixed, spot, 56 1/2 cents; do. September delivery, 56 1/2 cts.; do. October delivery, 57 1/2 cents.	
<b>Oats.</b> —Are steady and in fair demand. We quote Western mixed, new, 34@35 cts.; Southern, fair to good new, 34@35 cts.	
<b>Rye.</b> —Firm, with sales of tough at 58 cts.; of prime at 60 cts.	

## THE AMERICAN FARMER.

**Hay and Straw.**—In good demand and firm. We quote: Hay—Cecil county \$16@17; do. prime Pennsylvania and Maryland \$14@15; do. Western \$13@15; do. mixed \$12@14; do. Clover \$11@12. Straw—wheat \$7; do. oat \$8; do. rye \$13.

**Live Stock.**—**Beef Cattle.**—Rather dull, prices ranging as follows: Best on sale 5½@6¼ cts.; generally rated first-class 4¼@5¼ cts.; medium or good fair quality 3¼@4¼ cts.; ordinary thin Steers, Oxen and Cows, 2¼@3¼ cts. Milch Cows \$1 @25 ¢ head. **Pigs.**—Market quiet; the supply excessive. We quote 7@1¼ cts. ½ lb. net.

**Sheep.**—Dull of sale, except for good fat Sheep, which are in fair demand. We quote them at 4@5 cts. gross. Stock Sheep \$1.50 @3.50 ¢ head.

**Provisions.**—Steady and firm, with an advancing tendency. We quote: Bulk Shoulders, packed, 6@6½ cts.; do. C. R. Sides, do. 7¼@8 cts.; do. L. C. Sides, do. 7¼ cts.; Bacon Shoulders, do. 6¼@6½ cts.; do. C. R. Sides, do. 8¼@8½ cts.; do. Hams sugar-cured, 12@13 cts.; do. Shoulders, do. 9 cts.; do. Breasts 10 cts.; Lard, refined, tins, 9¼ cts.; Mess Pork, ½ brl., \$14.00. **Butter.**—Active and firm for choice; inferior sorts dull. Northwestern tubs 9@20 cts.; Nearby Roll, 15@20 cts. **Cheese.**—Steady and firm. We quote Eastern, fair to choice, 9@11 cts.; Western do. 8@10¼ cts. **Eggs.** 17@18 cts. ½ doz. for fresh.

**Seeds.**—Timothy is jobbing at \$1.70@1.85 ¢ bu. hel.

**Tobacco.**—Receipts large. Maryland is active, sales having been made to nearly the full extent of the French contract. Good grades of Maryland are scarce and in demand; low grades go off slowly. We quote Maryland inferior and frosted \$3.50@3.60; round common \$3.40; good do. \$4.30@4.50; good to fine red \$8@10; Virginia common and good lugs \$4@6.50; common to medium leaf \$6.50@8.50; fair to good leaf \$9@12.

EASTON, MD., July 25th, 1877.

MESSRS. J. J. TURNER & CO., BALTIMORE.

Gentlemen—I have used your "Excelsior" for several years on my wheat, and tested it side by side with a number of other fertilizers.

My experience leads me to give it the decided preference over any other that I have tried. I applied about two hundred pounds to the acre. It has not only given a fair growth of straw, but has increased largely the yield of grain, and made a decided improvement in the succeeding clover crop.

Yours respectfully,

JOSEPH E. M. CHAMBERLAINE.

HAMILTON, LOUDOUN CO., VA., }  
July 28th, 1877. }

MESSRS. J. J. TURNER & CO.

Gentlemen—I have used "Excelsior" for about six years; have applied it in all quantities per acre, from 75 to 200 pounds, and always with good results. I have used it by the side of several other kinds of Fertilizers, and when a difference in the crop could be discerned it was always in favor of "Excelsior."

I have also found that the heavier the application up to 200 pounds the more profitable it becomes, both in the yield of wheat and the succeeding grass crop.

Very respectfully yours,

FENTON M. LOVE.

## THE NEW SEEDLING PEACHES

Wilder, Saunders, and Downing. Centennial award granted. Earliest exhibited. Trees and buds for sale. H. M. ENGLE & SON, Marietta, Pa.

## To the Farmers of Maryland and Virginia.

BALTIMORE, July 25th, 1877.

Following our usual custom, we had samples drawn by a disinterested party from stock of Excelsior and Ammoniated Phosphate, nearly 60,000 bags, representing our manufacture for the coming fall season, and handed Dr. G. A. Liebig, chemist of this city, and append his analyses, dated July 24th, 1877:

### "EXCELSIOR."

Ammonia.....	6.20
Soluble Bone Phosphate of Lime.....	25.50
Undecomposed Bone Phosphate of Lime..	6.20
Sulphate of Potash (K. O. 1.56).....	2.88

J. J. TURNER & CO.'S

### AMMONIATED BONE SUPER-PHOSPHATE.

Ammonia.....	3.48
Soluble Bone Phosphate of Lime.....	26.36
Undecomposed Bone Phosphate of Lime..	3.34
Sulphate of Potash (K. O. 1.09).....	2.00

Our fertilizers are composed of the most concentrated materials,—High-Grade No. 1 Peruvian Guano, animal bones dissolved in sulphuric acid and potash,—and are richer in ammonia and soluble phosphates than any other sold in this market, and we offer them for sale at the commercial value of their constituents, that the farmer may know that he gets the worth of his money, viz:

### "EXCELSIOR."

Ammonia, 6.20 per cent. @ \$3.50 per unit.....	\$21.70
Sol. Bone Phos. Lime, 25.50 per cent. @ \$1 per unit.....	25.50
Undecomposed Bone Phos. Lime, 6.20 per cent. @ \$0.20 per unit.....	1.34
Potash (K. O.) 1.56 per cent. @ \$1.50 per unit.....	2.34
Total.....	\$50.78

### PRICE \$50 PER TON.

J. J. TURNER & CO.'S

### AMMONIATED BONE SUPER-PHOSPHATE.

Ammonia, 3.48 per cent. @ \$3.50 per unit.....	\$12.18
Sol. Bone Phos. Lime, 26.36 per cent. @ \$1 per unit.....	26.36
Undecomposed Bone Phos. Lime, 3.34 per cent. @ \$0.20 per unit.....	.67
Potash (K. O.) 1.09 per cent. @ \$1.50 per unit.....	1.64
Total.....	\$40.85

### PRICE \$40 PER TON.

We challenge competition in quality, mechanical condition and prices.

For the liberal patronage extended to us in the past we return our thanks, and assure our patrons that we will spare no efforts to merit a continuance for the future.

J. J. TURNER & CO.

No. 42 Pratt Street,  
BALTIMORE, MD.

THE ANNUAL EXHIBITION  
OF THE  
**Maryland Horticultural Society**

Will be held in connection with the  
display of Fruits at the 16th Biennial  
Session of the

**American Pomological Society,**

ON THE  
11th, 12th, 13th and 14th September,

AT THE  
**Armory of the 5th Regiment, M. N. G.,**  
**BALTIMORE.**

Which has been enlarged for the occasion by the  
addition of **TWO SPACIOUS WINGS.**

☞ All fruit-growers of Maryland are invited  
to contribute to the Show their best products,—  
forwarding them to the Secretary, **WM. B. SANDS,**  
128 W. Baltimore street, or at the Armory.

**SAUL'S**  
**NURSERIES**

**WASHINGTON, D. C.**

The undersigned offers a fine stock of the  
following at low rates:

**PEARS**—Souvenir du Congress, Pitmaston  
Duchess, and other new sorts; a very heavy  
stock of fine trees.

**NEW PEACHES**—Alexander, Amsden's June,  
&c.; also the fine new late varieties.

**FRUIT TREES** of all kinds; an extensive  
stock, viz: Plums, Cherries, Apricots. Apples  
suitable to the South, &c.

Grape Vines, Strawberries, Raspberries, &c.  
Evergreens, new Ornamental Trees, new Shrubs,  
&c. Small sizes suitable for Nurserymen, as  
well as large stock in great variety.

**DUTCH BULBS.**

Large importations direct from the leading  
growers in Holland. First-quality Bulbs, Hyacinths,  
Lilies, Tulips, &c.

New and rare Greenhouse Plants; a very rich  
collection well-grown, as well as fine stock for  
winter blooming.

**NEW ROSES**—Duchess of Edinburg, Perle  
des Jardins; and with an immense stock of  
finest varieties grown in pots and open ground.

New Wistarias, new Clematis, new Pelargoniums,  
Geraniums, &c.

Catalogues mailed to applicants.

**JOHN SAUL,**

a-8t

**Washington, D. C.**

**Maryland Agricultural College.**

The undersigned, holders in person or by  
proxy of one-fourth of the stock of the corpora-  
tion of the Maryland Agricultural College, in pur-  
suance of the terms of the charter hereby  
call a special meeting of the stockholders in the  
same for Tuesday, September 11, at 10½ A. M.,  
at Guy's Hotel, Baltimore.

A. B. Davis,	Wm. B. Sands,
J. Howard McHenry,	Chas. B. Calvert,
Geo. H. Calvert, Jr.,	E. S. Calvert,
B. McLean Hardisty,	Wm. N. Calvert.

**BERKSHIRE PIGS FOR SALE.**

In Pairs and Trios; not akin; none but Choice Pigs  
sold; a few Choice Sows, with Pig, for sale;—all at  
moderate prices. Satisfaction guaranteed. Pedigrees  
perfect. Correspondence solicited.

**O. J. SHIFLER,**  
sep-3m Hagerstown, Washington Co., Maryland.

**PUBLIC SALE**  
OF

**Land in Gloucester Co., Va.**

Within a few Miles of Chesapeake Bay.

By virtue of a deed of trust made by George Hughes  
and wife, and duly recorded in the clerk's office of Glou-  
cester Co., Va., and as commissioner appointed by a de-  
cree of the Circuit Court of said county, in the chancery  
suit therein depending in the name of John Prosser  
Tabb, &c., plaintiff, against George Hughes, &c., de-  
fendants, the subscriber will sell, on Monday, the 1st  
day of October, 1877, (that being the County Court day)  
at public auction, at Gloucester Court House, that valu-  
able, well-known, and very desirable Tract of Land in  
Gloucester County, called

**WHITE MAR II.**

the late residence of John Tabb, Esq., on which, at pre-  
sent, George Hughes resides,

**Containing about 1,700 Acres,**

mostly low grounds. This is one of the finest estates in  
Eastern Virginia, and has long been noted for its ferti-  
lity and productiveness. All kinds of crops cultivated  
in Eastern Virginia grow well upon it and it is the best  
farm for the cultivated grasses in the county, and per-  
haps in this section of the State,—large quantities of  
timothy and other kinds of hay having been gathered  
from it for years past. It is beautifully situated, and  
the products of the farm can be delivered from a landing  
on the place. The improvements are consistent with  
the value of the property, being first-class in every  
respect. The mansion house is of brick, large and  
commodious, with water, gas, and all modern conve-  
niences. There are sufficient barns, stables, and all  
other necessary and convenient out-houses. There is  
running water in every field, and as a stock farm it is  
unsurpassed. For health it is unexceptionable. The  
neighborhood is remarkably good. Churches, schools  
and post-office in easy walking distance. Within a few  
hours travel (tri-weekly) of Baltimore and Richmond,  
by the Richmond, York River and Chesapeake Line, and  
of Norfolk by steamer "Banks," landing at Gloucester  
Point, where conveyance can always be had. The terms  
of sale will be for only a small proportion of the pur-  
chase money in cash, not exceeding \$4,000, and for the  
balance a credit of one, two and three years in equal  
payments, bearing interest from the day of sale.

For the deferred payments, bonds with security will  
be required of the purchaser, to whom possession will  
be given when he shall have complied with the terms of  
sale.

Persons who may desire to purchase are invited to  
view the property before the day of sale, and to commu-  
nicate with me,—my post-office being Gloucester  
Court House, Va.

**M. B. SEAWELL,**  
Trustee and Commissioner.

au-1f



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## BALTIMORE, MD.

Cor. Baltimore, Light and German Sts.

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# METROPOLITAN HOTEL,

## WASHINGTON, D. C.

**PENNSYLVANIA AVENUE,**

*Between 6th and 7th Sts.*

**R. B. COLEMAN & CO.**

PROPRIETORS.

HEADQUARTERS

**American Pomological Society,  
Maryland Horticultural Society,**

September 10th to 16th, 1877.

Both Hotels under same management and control.

## THE AMERICAN FARMER.

### CLAWSON WHITE WHEAT.

A very superior stiff-strawed Wheat, the product of a crop which yielded 44 bushels to the acre the past season and produced 10 per cent. more than Fultz Wheat raised on the same soil side by side. For sale by


#### GRIFFITH & TURNER,

Dealers in Implements, Seeds and Fertilizers,  
41 and 43 N. Paca Street,

s-1f

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### The Largest Job of Roof Painting! In the World.

Exhibition Building, Phila., H. W. Johns' Asbestos Paint. The Superintendent certifies: "I believe it to be the only material in existence which could have effectually stopped this roof from leaking." Cements for leaky roofs, Fire Proof, and finest Paints, Steam-Packing, Coverings for Boilers and Pipes; ready-made Roofing, all made from Asbestos. Also the best Extinguishers; Lime of Test Blocks for rendering buildings Fire-Proof.  SEND FOR CIRCULARS.

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51 Lexington Street,


BALTIMORE, MD.

#### RIFLES, SHOT-GUNS, REVOLVERS,

sent C. O. D. For examination, all charges paid. No risk. No humbug. Write for catalogue. Address  
GREAT WESTERN GUN WORKS, Pittsburgh, Pa.

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43 North Calvert St., Baltimore.

Analysis of Ores, Minerals, Soils, Fertilizers, Coals, Mineral Waters, Poisons, Chemical Products, &c., &c. Investigations in connection with applied Chemistry.  
 TERMS MODERATE.

### WINTER OATS.

The subscribers offer 1000 bushels Virginia Winter Oats (raised in the latitude of Richmond) in new grain-sacks of two bushels, weighing 70 pounds, at \$2.50 per sack.

These Oats are as hard as wheat and are an especial acquisition at the South, affording pasturage throughout the winter, succeeded by an abundant yield of grain. They should be sown early in autumn, the earlier the better.



#### DAVID LANDRETH & SONS, SEED WAREHOUSE,

s-2t

Nos. 21 & 23 South Sixth St., Philadelphia.




#### NONPAREIL FARM & FEED MILLS.

Bone, Drug, and Spice Mills. 10 sizes, for Hand or Power. Conical French Burr Stone Flouring and Corn Mills.  Received the Grand Award Diploma and Medal at Centennial.  Illustrated pamphlet sent Free. Address, L. J. MILLER, 181 E. Front St., Cincinnati, O.

## COULSON'S Pure Ground Bone,

STRICTLY PURE

BONE MEAL.

 Liberal Inducements offered Farmers and others at the Mill, Jenkins Lane North of Greenmount Cemetery.

#### EDW'D L. COULSON,


Office, 32 Light Street.

## TREES AND SHRUBS

OF EVERY DESCRIPTION AND SIZE.

SPECIALTIES made of Rhododendrons, Purple Beech, Hardy Azaleas, Chinese Azaleas, Camellias, Magnolias, Roses, Evergreens, and new and rare Plants of the latest introduction, including the

### EXQUISITE JAPANESE MAPLES,

With their leaves of many colors, and in some kinds deeply cut like lace.  CATALOGUES FREE. Address

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S. B. PARSONS & SONS, Kissena Nurseries, Flushing, N. Y.

## "COTSWOLD SHEEP."

Rams and Ewes from best English stock, for sale at moderate prices. Address

July-31

C. J. B. MITCHELL,  
QUEENSTOWN, MD.

**\$55 & \$77** a Week to Agents. Samples FREE.  
P. O. VICKERY, Augusta, Maine.



The largest and most complete Stock of Fruit and Ornamental Trees in the U. S. Priced Catalogues sent as follows: No. 1. Fruits, with colored plate, 15 cts.; plain, 10 cts. No. 2. Ornamental Trees, e.c., with plate, 25 cts.; plain, 15 cts. No. 3. Greenhouse; No. 4. Wholesale, and No. 5. List of New Roses. FREE. Address,  
**ELLWANGER & BARRY, Rochester, N. Y.**

## A Complete Wheat Fertilizer.

## Ammoniated Phosphate & Dissolved Bone,

Prepared by

## The Pacific Guano Company,

EXPRESSLY FOR WHEAT.

This article is very rich in AMMONIA, SOLUBLE PHOSPHATE and POTASH.

WE ALSO OFFER

## Dissolved Bone Phosphate

AND

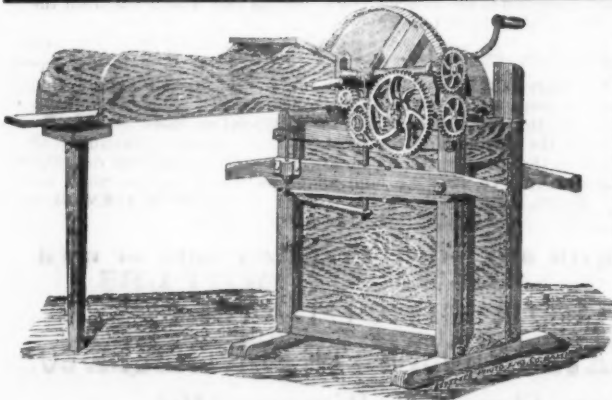
## Soluble Pacific Guano.

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GENERAL AGENTS,

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### Lever Feed Masticator

Is the greatest feed economizer in the world! It pulverizes and crushes fodder so as to make every particle available food. It is also a very superior Hay and Straw Cutter; being so arranged as to cut several different lengths. For particulars and prices, address

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I also manufacture the celebrated Triple-Geared Pelton Horse-Power, all sizes.

Good responsible live Agents wanted.

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# For Wheat.

## THE POPPLEIN Silicated Super-Phosphate.

PATENTED MARCH 31st, 1874.

Containing all the ingredients necessary for the full development of the crop to which it is applied.

Chemical Laboratory of the University of Pennsylvania,  
West Philadelphia, June 25th, 1877.

W. Morris Orem, President

*Popplein Silicated Phosphate Fertilizer Company, Baltimore, Md.*

DEAR SIR:—The sample of your Fertilizer marked B. B. B., and sent to me for examination by authority of Mr. Thos. J. Edge, Secretary of the Pennsylvania State Board of Agriculture, was analyzed by me with the following results:

Soluble and Reverted Phosphoric Acid.....	10.34	per cent.
Insoluble Phosphoric Acid.....	1.74	"
Diatomaceous Silicic Acid.....	13.07	"
Potash.....	2.80	"

The value of one ton of 2,000 pounds of this Fertilizer is as follows:

206.8 lbs. of Soluble and Reverted Phosphoric Acid, @ 10 cts.....	\$20.68
34.8 lbs. of Insoluble " @ 4 cts.....	1.39
261.4 lbs. of Diatomaceous Silicic Acid, @ 5 cts.....	13.07
56.0 lbs. of Potash, @ 7 cts.....	3.92
	<hr/> \$39.06

Yours truly,

F. A. GENTH.

We make separate and distinct compounds for tobacco, truck, cereals and cotton, based on the analysis of each plant, and have the exclusive right to use

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Of which Prof. F. A. Genth, of the University of Pennsylvania, says: "It is well known that Silica in such a condition has been the great lack of all fertilizers in the market. Since a long time I have been an advocate of the introduction of available Silica into artificial manures.

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Yours truly,

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We solicit a trial with any other Fertilizer sold or used.

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**CIDER MILLS, GRAIN DRILLS of best make,**

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66° Oil Vitriol, German Potash Salts, Pure Chemicals for making Super-Phosphate at the lowest market price.

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"CHAMPION,"

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"SOLUBLE FLOUR OF BONE,"

"AMMONIATED,"

"FARMER'S RELIANCE,"

Also, DISSOLVED BONE BLACK,

DISSOLVED BONE ASH,

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**Standard Manures !**

**PREPARED FOR ALL CROPS.**

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**Furnaces,**

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CELEBRATED AMMONIATED

# BONE SUPER-PHOSPHATE.

Price \$45 per Ton at Baltimore.

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Price \$35 per Ton at Baltimore.

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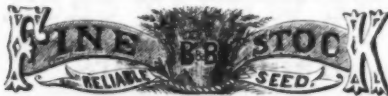
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Penna.  
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Lightest draft  
men, durable,  
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economical  
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use. Will save  
grain, clean it  
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Threshers and Horse-powers of all kinds  
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Repairs promptly attended to. A liberal discount made to those who purchase to sell again.

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## Great American Fertilizer.

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**BARGAIN** Wedding Ring, 1 Engraved Band Finger Ring, 1 Amethyst Stone Ring Inlaid with Gold, 1 Elegant Ring marked "Friendship," 1 Amethyst Stone Scarf Pin Inlaid with gold, 1 Silvered Hat Pin, 1 set Ladies' Jet and Gold Pin and Drops, 1 Misses' set Jet and Gold, 1 Ladies' Jet Set Ornamented, 1 set Handsome Rosebud Ear Drops, 1

**EVER** Gents' Elegant Lake George Diamond Stud, 1 Cardinal Red Bead Necklace, 1 pair Ladies' Amethyst Stone Ear Drops, Inlaid with Gold, 1 Ladies' Ornamented Jet Brooch, 1 Fancy Scarf Ring and Elegant Watch Chain. **TAKE YOUR CHOICE, THE ENTIRE LOT OF 20 PIECES, SENT POSTPAID FOR \$1.00 OR ANY 6 PIECES YOU CHOOSE FOR 50 CENTS. NOW IS THE TIME TO MAKE MONEY. THESE CAN BE EASILY**

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Forming the most concentrated, universal and durable Fertilizer ever offered to the Farmer—combining all the stimulating qualities of Peruvian Guano, and the ever-durable fertilizing properties of Bones, in fine dry powder, prepared expressly for drilling, and can be applied in any quantity, however small, per acre. It is the opinion of many close-calculating Farmers, after NINETEEN YEARS experience in testing it side by side with other popular fertilizers, that an application of 100 pounds of "Excelsior" is equal to 200 pounds of any other fertilizer or guano, and therefore fully 100 per cent. cheaper.

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PRICE \$50 PER TON.

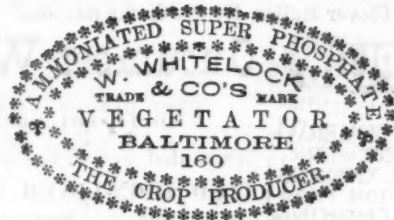
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\$3.50

PER BAG.



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PER BAG.

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NO REDUCTION IN QUALITY. :

NO COMMON MATERIAL USED.

NOT EXHAUSTED BY THREE CROPPINGS.

We ask Farmers to test its value by the side of any Manure they may apply.

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UNEQUALLED IN EVERY ESSENTIAL  
OF STRENGTH, DURABILITY,  
PERFECT WORK,  
LIGHT DRAUGHT,  
FREEDOM FROM  
CHOKING.

MEETS  
ALL THE  
WANTS  
OF THE  
PLANTER  
FOR THE  
CULTIVATION  
OF AN ENTIRE  
CROP.

WE SOLICIT A TRIAL AND WARRANT EVERY PLOW  
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WITH PATENT CAST-IRON CYLINDER,

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Every Pump Provided with Patent Anti-Freezing Attachment.

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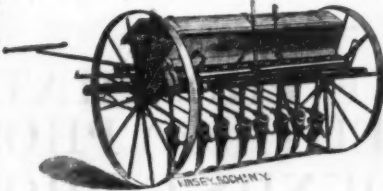
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SEEDING.



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Awarded the ONLY MEDAL given to a  
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Received the ONLY AWARD and MEDAL  
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**Finely Ground and Free**  
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Would inform our customers and all persons contemplating purchasing for their fall use, that we are now prepared to fill their orders, large or small, at short notice.

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**REDUCTION IN PRICE**  
—OF—  
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**Ammoniated Bone Super-Phosphate.**



**ANALYSIS.**

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Soluble Phosphate of Lime.....	28.91
Bone Phosphate of Lime.....	3.15
Potash.....	4.07

Composed of Animal Bones, dissolved in Sulph. Acid, Guano and Potash, forming one of the most concentrated Fertilizers offered to the farmer.

In fine dry powder, prepared especially for drilling in with the Grain.

**We Challenge Competition in Price and Guarantee its Uniform Quality, and the Cheapest Fertilizer on the Market.**

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**PRICE \$40 PER TON.**

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**GOOD BIRDS AT LOW PRICES.**

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Eggs carefully boxed and delivered at Express office  
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All bred from the most noted and fashionable strains of Prize-Winning Stock.

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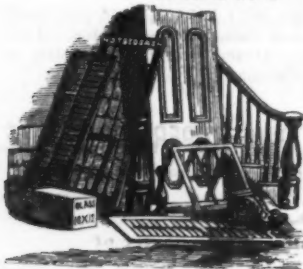
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